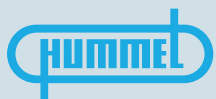


Setting Standards

Circular Connectors





Setting Standards

www.hummel.com

HUMMEL AG





Online Catalog

- Product Pictures and Product Information
- Product and Assembly Videos
- Assembly and Operations Manual
- Technical drawings
- 3D data
- Certificates



Download-Center

- Catalog and Flyer
- Assembly instructions and installation instructions
- Press releases
- Certificates and approvals
- RoHS, REACH / SVHC, WEEE, Conflict minerals
- ...



Searching Products

- Part Number search
- Searching Details



Enclosure-Configurator

- Individual Enclosures
- Enclosure Solutions
- Online configuration, requesting and ordering



Technology Center

- Technical Information (Protection, thread, material, ...)
- Diagrams and evaluation
- Product description
- Assembly Video and Operations Manual



News of the HUMMEL AG

- Trade fairs and exhibitions
- Press releases
- New Products
- Job vacancies
- Studies, training and vocational practical training



Solutions all from one source



Touch



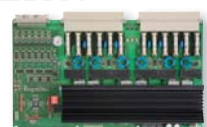
Cable Glands,
Circular Connectors



Solutions



Industrial Enclosures



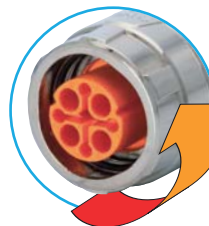
Electronic

TWILOCK / TWILOCK-S

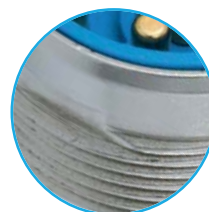
- + Quick Connect with patented Polygon Lock
- + Multi functional: Ideal with Twilock and screw connection
- + Easy handling, exceptional functionality
- + Resistant to vibration



Clearly defined:
OPEN – CLOSE



Locking with a slight rotation or
release of the connection



Multi functional: Special thread allows
use of Twilock and screw connection



TWILOCK-S-Version
Compatible to Speedtec

TWINTUS

The new Low-Cost-Standard for Drives

- + Minimized Size
- + Free choice of Signal and Power Inserts
- + Flange 20x20 and 25x25



Connector
4 small drives

TWINTUS



Colour coded inserts
(DESINA colour code)



IP 67 (NEMA 4x) self sealing,
even for threaded holes



Optional EMC-sheet for separating
signal and power areas



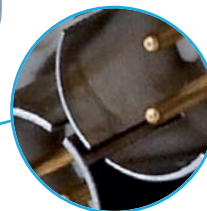
Version M 16 / M 12 available

M 23 Fast Ethernet PoE

- + Data transfer up to Gigabit rate, Multibus II capability
- + Hybrid connectors for combined data and power transmission
- + Five separate shield potentials available
- + Rugged, safe, compact: ideal for use in rough industrial environments



4 Twinax inserts and 12 additional contacts provide for maximum power density in M23 housing

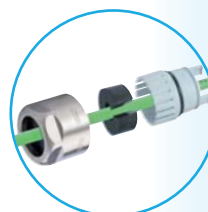


End-to-end shielding of data inserts prevents crosstalk



Integrated shield springs for extremely easy shield connection

M 23 RJ 45: Robust – simple & small!



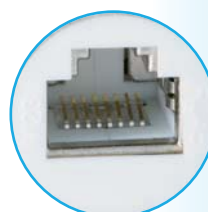
Design allows for terminated patch cable



Integrated coupler accommodates off-the-shelf RJ 45 patch cables.



Integrated cable strain relief warrant an IP 67 / IP 69 K rating making the M 23 based RJ 45 Connector an ideal solution for robust applications.

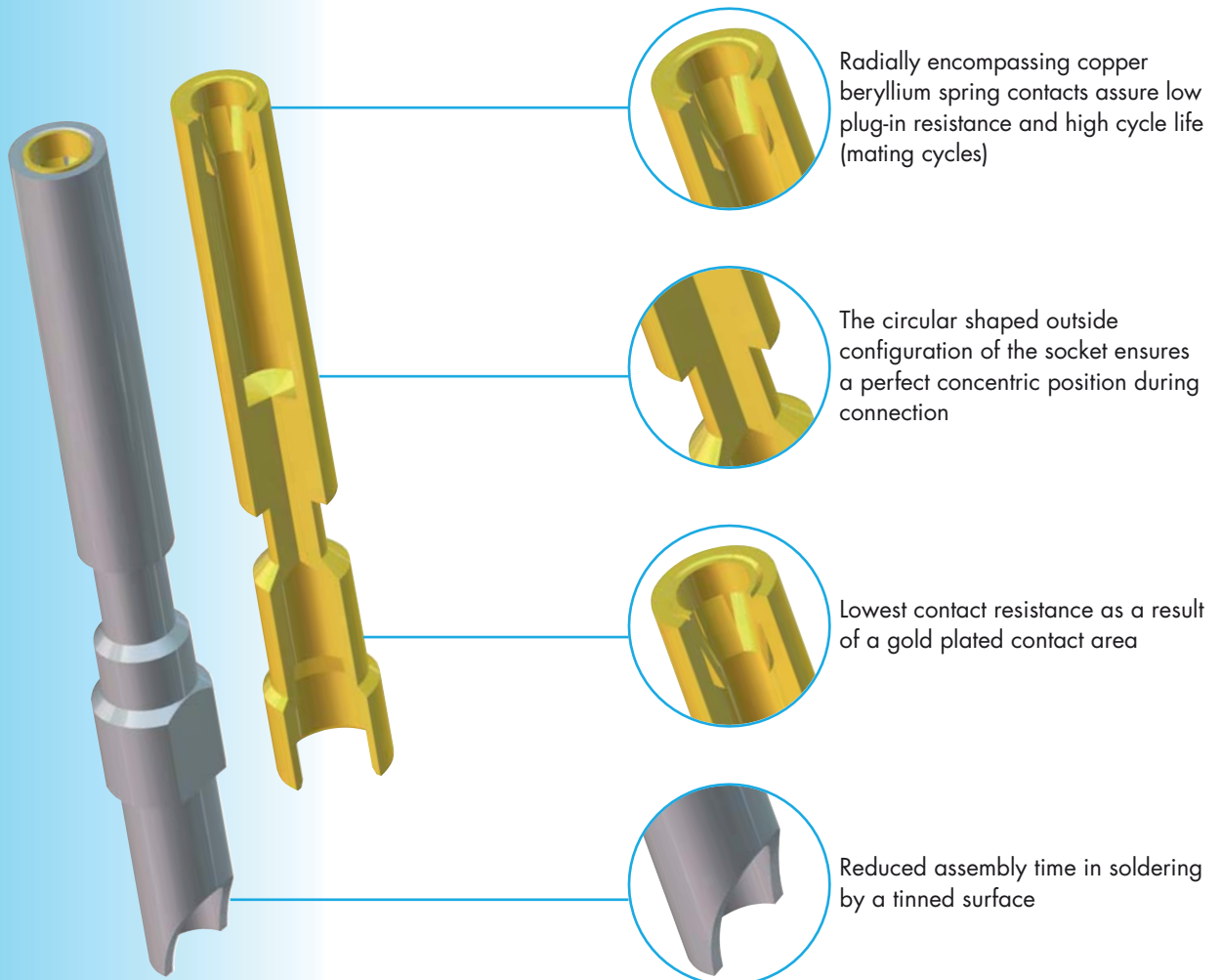


A standard RJ 45 connection is suitable as service and programmable interface.

SLS-Technology

The new, high performance type of contacts – HUMMEL SLS-Technology (Spring Loaded Socket)

- + Integrated spring mates with the pin contact and encompasses it radially
- + Exceptional electrical performance with ultimate contact reliability
- + Tinned solder contacts assure easy and quick assembly



User friendly assembly

- + Clear and modular structure of all connector series
- + Patented modular strain relief insert and contact insert
- + One step cable assembly and shielding
- + Simple, quick and reliable assembly into the connector housing



Colour coding of spacers for male and female inserts



Cable assembly and shielding is possible in a single operation.



Strain relief insert with four fingers, secured in a recess, prevents cable rotation.

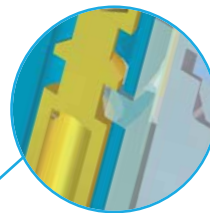
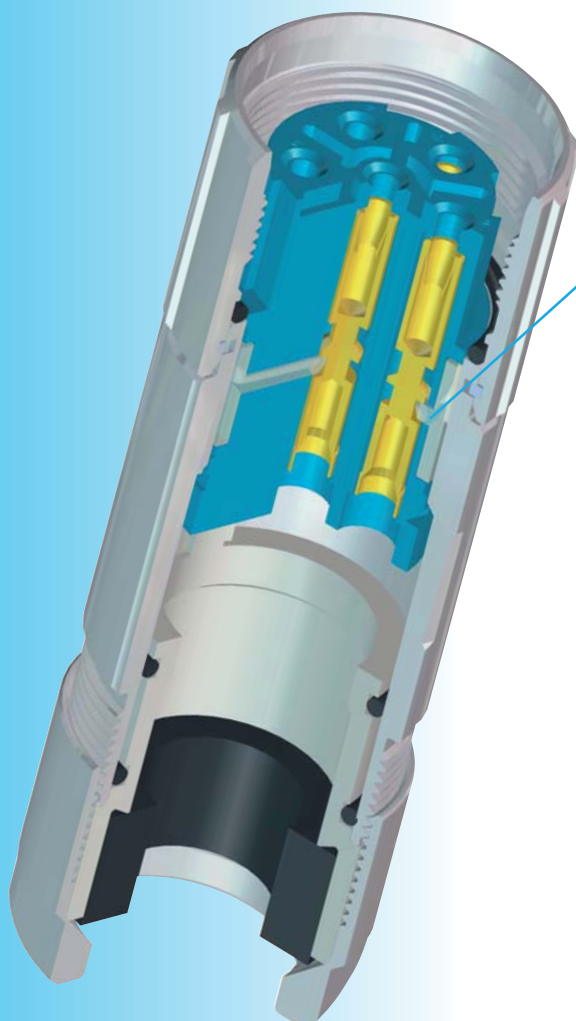


Flexible EMC-O-ring guarantees reliable EMC-protection for light and heavy braided shields.

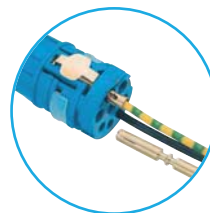
Euro-Lock-System[®]

Euro-Lock-System[®] – the patented locking system

- + The integrated locking clip secures the contacts in the insert
- + Easy assembly and disassembly of the contacts
- + No special tools required



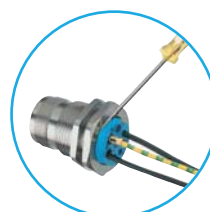
Secure contact lock



Quick assembly



Simple contact unlocking and disassembly



Complete assembly and disassembly without special tools

Unique Benefits

- + Interchangeability of pin or socket inserts in every style connector housing
- + Integrated Liquid Tight Strain Relief Fitting
- + Internationally certified exceptional quality



File-No. E 213337



Germanischer Lloyd



Strain Relief Fitting with flex protection for cable



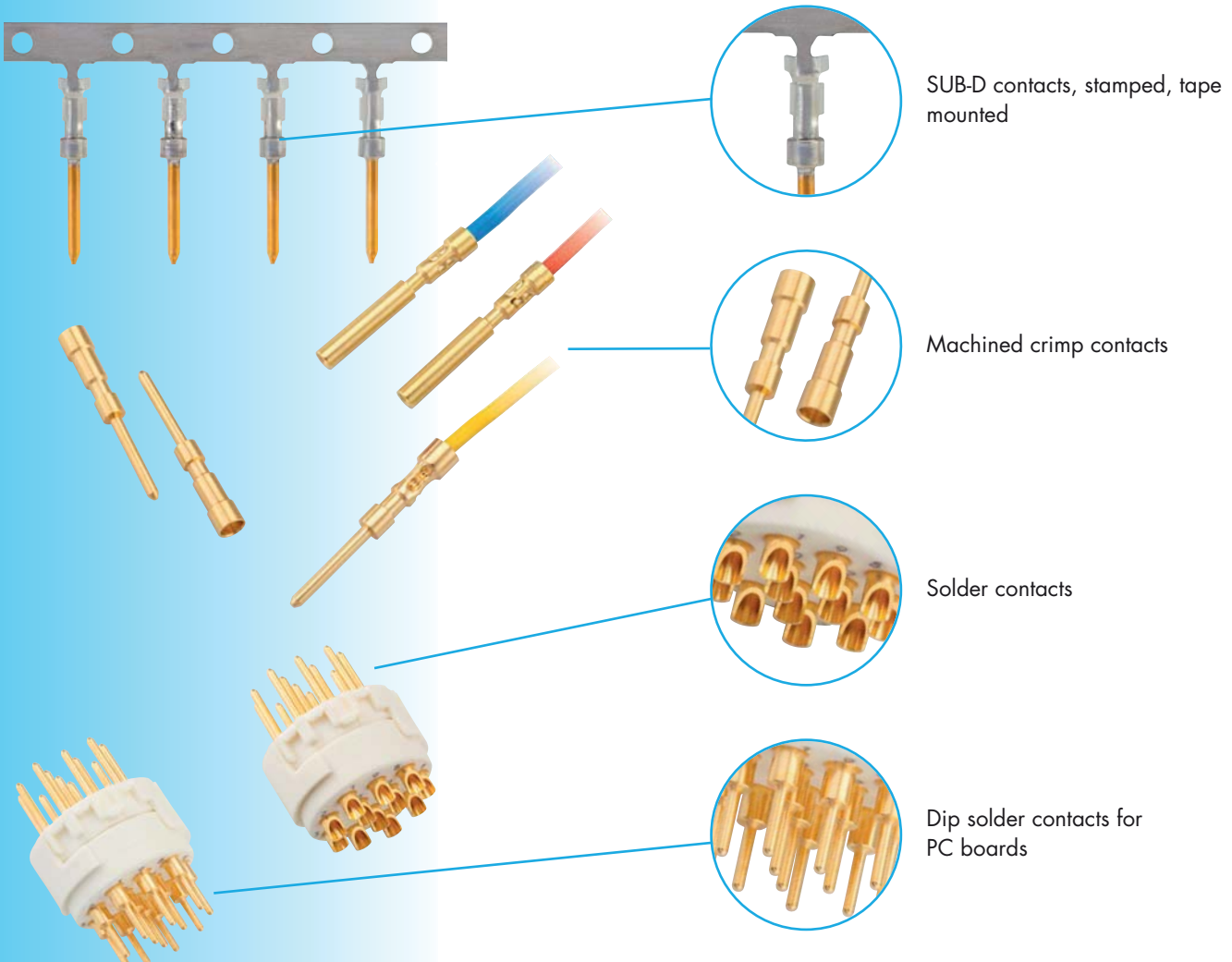
Flexible conduit connector



MULTI Seal Connector

The Insert – One for all

- + Insert can be used for all types of contacts
- + Crimp contacts machined or on tape
- + Solder contacts for manual soldering or dip soldered for PC boards



Setting the Standards	page 4
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Setting Standards

Technical Information

Nominal Current

Allowable current (Amp), that can be transmitted by each contact continuously and simultaneously.

Nominal Voltage

Allowable voltage (Volt), that can be applied to each contact continuously and simultaneously.

Test Voltage

Voltage which, under certain conditions, a connector can be exposed to without breakdown.

Degree of Protection

Potential dirt accumulation of a disconnected connector in a certain environment.

Degree of Protection 2

No permanent conductive dirt accumulation will occur. Temporary conductive dirt accumulation, such as condensation, is possible. Typical for households, offices, laboratories and test labs.

Degree of Protection 3

Conductive, as well as dry non-conductive dirt accumulation can occur. It can be temporarily conductive due to condensation. Typical for industrial and factory environments.

Additional remarks (pollution level)

If connectors being defined for pollution degree 1 and overvoltage category 1 are applied for other conditions (higher pollution degree and higher overvoltage category) voltages level reduce correspondingly. But the connectors can be used without any problems at reduced maximum voltages.

Mating cycles

Mating cycles are the number of insertion and extraction cycles a connector can withstand before the electrical or mechanical failure in relationship to the connector's design specification.

Air gap

The minimum gap of air between two conducting surfaces permissible at given voltage.

Creep distance

The minimum dimension along the surface of an insulating material between two conducting surfaces.

PE

The PE-Contact is a ground contact for security reasons.

Safety Guidelines

When HUMMEL connectors are used for voltages greater than 50 Volts with conductive shell components they must be used in accordance with the safety regulations DIN VDE Part 410; IEC 60364-4-41. This regulation basically dictates that the power source should be turned off before mating and unmating connector. This regulation does not provide protection against electrical shock when mating and unmating connectors in the field.



Don't connect or disconnect HUMMEL Connectors under load.

Connectors M 16

TWINTUS
inclusive



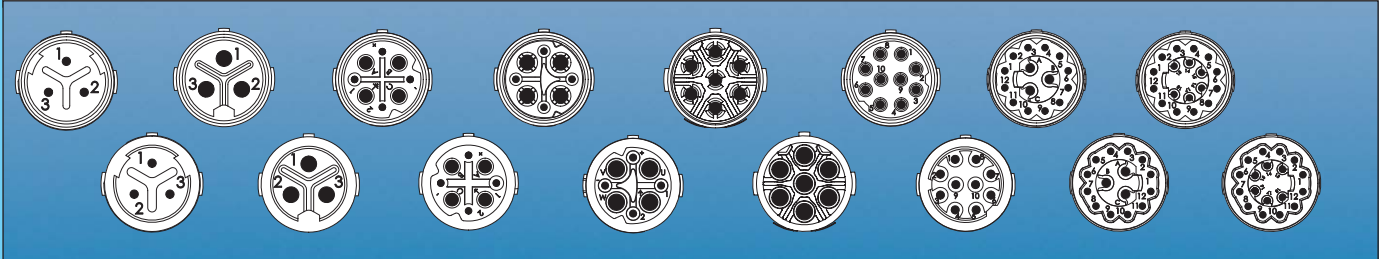
Housings

page 18



Inserts

page 22



Accessories

page 29



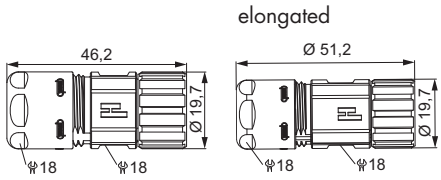
M 16 Control Signal Connectors

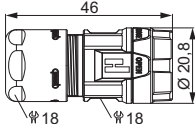
Mechanical Data	Materials and Technical Data
Housing	Copper-Zinc alloy Die Cast
Housing surface	Nickel plated other surface upon request
Inserts (for contacts)	Thermoplastic Polyamid PA 6 (Nylon 6/6), PBT Fire protection class V-0
Contacts	Brass Alloy
Contact surface at point of contact	Nickel and gold plated (0,25µm Au)
Minimum mating cycles	> 1000
Seals / O-Rings	Buna-N standard, optional Viton® (Viton is a registered trademark of DuPont)
Temperature range	-40° C – 125° C (-40 °F – 257 °F)
Type of contacts	Crimp, dip-solder (PCB)
Protection	IP 67 / IP 69K per EN 60 529 (connected), NEMA 4x
Cable diameter range	2 – 11 mm (.08 – .43")

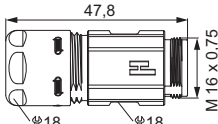
Electrical Data					
Number of positions	3 (3 x 1 mm)	3 (3 x 2 mm)	4 + 3 + PE / 320 V	4 + 3 + PE / 630 V	
Number of contacts	3	3	4 4	4 4	
Contact-Ø [mm]	1	2	0,8 1,6	0,8 1,25	
AWG [mm²]	0,14 – 1	0,5 – 2,5	0,08 – 0,34 0,34 – 1,5	0,08 – 0,34 0,34 – 1,5	
Nominal current ¹⁾ [A]	8	20	5 16	5 16	
Nominal voltage ²⁾ [V~] degree of protection 3 ⁴⁾	400	400	160 320	300 630	
Test voltage (Breakdown voltage) ³⁾ [V~]	2500	2500	1500 2500	1500 2500	
Insulation resistance [MΩ]	> 10 ¹⁰	> 10 ¹⁰	> 10 ¹⁰	> 10 ¹⁰	
Max. contact resistance [mΩ]	3	3	3	3 3	
Number of positions	6+PE	10	12 + 3	18	
Number of contacts	7	10	12 3	18	
Contact-Ø [mm]	1,25	1	0,8 1,25	0,8	
AWG [mm²]	0,5 – 1,5	0,14 – 0,75	0,08 – 0,34 0,5 – 1,5	0,08 – 0,34	
Nominal current ¹⁾ [A]	16	8	3 10	3	
Nominal voltage ²⁾ [V~] degree of protection 3 ⁴⁾	630	160	24 60	24	
Test voltage (Breakdown voltage) ³⁾ [V~]	2500	1500	1500 2500	1500	
Insulation resistance [MΩ]	> 10 ¹⁰	> 10 ⁶	> 10 ¹⁰	> 10 ¹⁰	
Max. contact resistance [mΩ]	3	3	3 3	3	

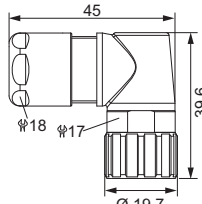
¹⁾, ²⁾, ³⁾, ⁴⁾ See Technical Information page 14

Connectors M 16 / Housing

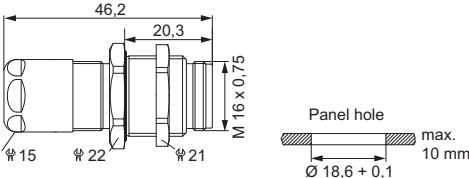
Straight Connector, Female Thread / elongated *		Cable-Ø	Part Number
		3 – 6 mm (.11 – .23")	7.810.300.000
		5 – 9 mm (.20 – .35")	7.810.400.000
		8 – 11 mm (.31 – .43")	7.810.500.000
		* elongated	
		3 – 6 mm (.11 – .23")	7.811.300.000
		5 – 9 mm (.20 – .35")	7.811.400.000
		8 – 11 mm (.31 – .43")	7.811.500.000
Contacts and inserts page 22 • Assembly instructions page 35 / 36			

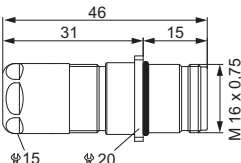
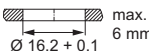
Straight Connector, Female Thread TWILOCK		Cable-Ø	Part Number
		3 – 6 mm (.12 – .24").....	7.816.300.000
		5 – 9 mm (.20 – .35").....	7.816.400.000
		8 – 11 mm (.31 – .43").....	7.816.500.000
Contacts and inserts page 22 • Assembly instructions page 35 / 36			

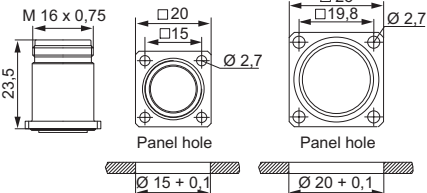
Straight Connector, Male Thread		Cable-Ø	Part Number
		3 – 6 mm (.11 – .23").....	7.820.300.000
		5 – 9 mm (.20 – .35").....	7.820.400.000
		8 – 11 mm (.31 – .43").....	7.820.5000.00
Contacts and inserts page 22 • Assembly instructions page 35 / 36			

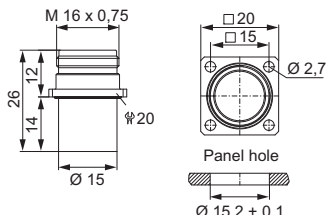
Right Angle Connector with positioning		Cable-Ø	Part Number
		3 – 6 mm (.11 – .23").....	7.831.300.000
		5 – 9 mm (.20 – .35").....	7.831.400.000
		8 – 11 mm (.31 – .43").....	7.831.500.000
Contacts and inserts page 22 • Assembly instructions page 37			

Connectors M 16 / Housing

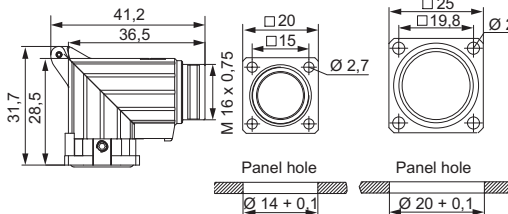
Cable-Ø	Part Number	Panel Connector with built in Cable Strain Relief	
Rear mounting, single hole mounted			
2 – 7 mm (.08 – .28")	7.852.300.000		
5 – 9 mm (.20 – .35")	7.852.400.000		
Including jam nut PG 11			
Contacts and inserts page 22 • Assembly instructions page 35/36			

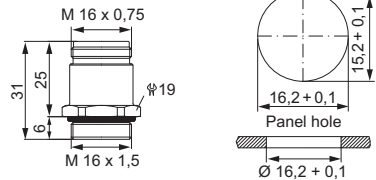
Cable-Ø	Part Number	Panel Connector with built in Cable Strain Relief	
Rear mounting, M2,5 x 4 single hole mounted			
2 – 7 mm (.08 – .28")	7.847.300.000		
5 – 9 mm (.20 – .35")	7.847.400.000		
Contacts and inserts page 22 • Assembly instructions page 35/36			

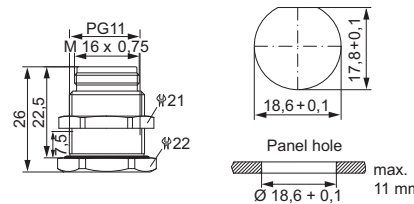
Type	Part Number	Panel Connector, Male Thread, Front Mounting	
4 x holes Ø 2,7 mm (.11") ..7.840.000.000 Flange 20 x 20 mm			
4 x holes Ø 2,7 mm.....7.840.100.000 Flange 25 x 25 mm			
Contacts and inserts page 22 • Assembly instructions page 38			

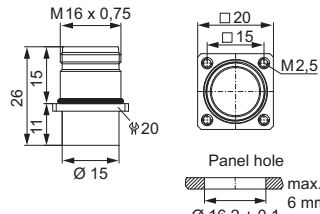
Type	Part Number	Panel Connector, Male Thread, Front Mounting	
Short version			
4 x holes Ø 2,7 mm (.11") ..7.840.200.000			
Flange 20 x 20 mm			
Contacts and inserts page 22 • Assembly instructions page 38			
			

Connectors M 16 / Housing

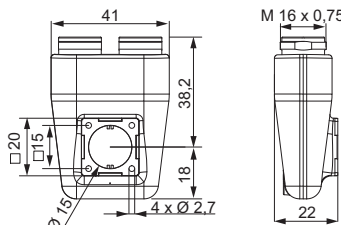
Right Angle Panel Connector, Male Thread, rotating	Type	Part Number
	300° rotating, locking screw at flange	
	4 x holes Ø 2,7 mm (.11") ...7.843.000.000 Flange 20 x 20 mm 4 x holes Ø 2,7 mm7.843.100.000 Flange 25 x 25 mm	
		
Contacts and inserts page 22 • Assembly instructions page 39		

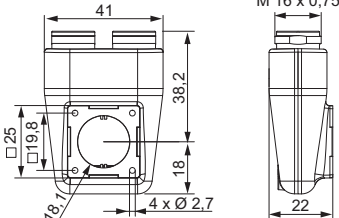
Panel Connector, Male Thread	Type	Part Number
	Front mounting, single hole mounted	
	Thread M 16 x 1,57.842.000.000	
		
Contacts and inserts page 22 • Assembly instructions page 38		

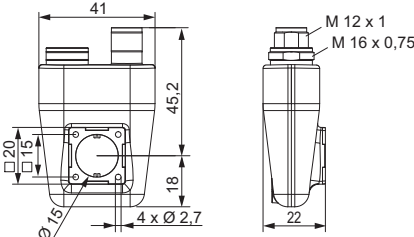
Panel Connector, Male Thread	Type	Part Number
	Rear mounting, single hole mounted	
	Including jam nut7.850.000.000	
		
Contacts and inserts page 22 • Assembly instructions page 38		

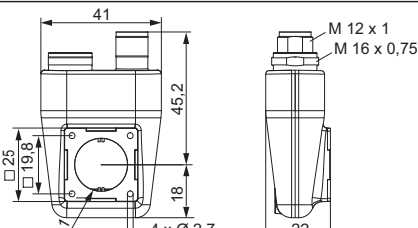
Panel Connector, Male Thread	Type	Part Number
	Rear mounting, 4 x thread M 2,5	
	Flange 20 x 20 mm7.845.000.000	
		
Contacts and inserts page 22 • Assembly instructions page 38		

Connectors M 16 / Housing

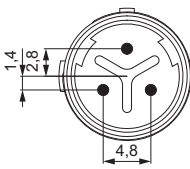
Type	Part Number	TWINTUS	
Flange 20 x 20 mm			
Uncoated	7.848.000.000		
Surface nickel plated	7.848.000.001		
Surface black conductive.....	7.848.000.00B		
Contacts and inserts page 22 • Accessories page 29 • Assembly instructions page 33			

Type	Part Number	TWINTUS	
Flange 25 x 25 mm			
Uncoated	7.848.100.000		
Surface nickel plated	7.848.100.001		
Surface black conductive.....	7.848.100.00B		
Contacts and inserts page 22 • Accessories page 29 • Assembly instructions page 33			

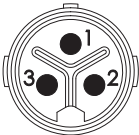
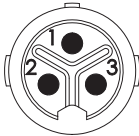
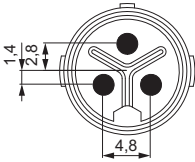
Type	Part Number	TWINTUS M 16 / M 12	
Flange 20 x 20 mm			
Uncoated	7.848.200.000		
Surface nickel plated	7.848.200.001		
Surface black conductive.....	7.848.200.00B		
Contacts and inserts page 22 • Accessories page 29 • Assembly instructions page 34			

Type	Part Number	TWINTUS M 16 / M 12	
Flange 25 x 25 mm			
Uncoated	7.848.300.000		
Surface nickel plated	7.848.300.001		
Surface black conductive.....	7.848.300.00B		
Contacts and inserts page 22 • Accessories page 29 • Assembly instructions page 34			

Connectors M 16 / Inserts / Pinouts

Inserts 3-pole (3 x 1 mm)		Type	Part Number	Part Number
			Pins	Sockets
	Insert pin mating view	Insert		
		without contacts	7.003.903.101	7.003.903.102
		Insert with dip solder contacts		
		Length 10 mm	7.001.903.127	7.001.903.108
		Insert with dip solder contacts		
		Length 17 mm	7.001.903.137	7.001.903.118
	Insert socket mating view			
				
		Required Contacts		
		3 x 1 mm	7.010.901.001	7.010.901.002 / 7.010.901.012

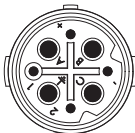
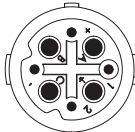
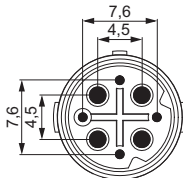
Contacts page 27-28

Inserts 3-pole (3 x 2 mm)		Type	Part Number	Part Number
			Pins	Sockets
 Insert pin mating view	Insert			
	without contacts	7.003.983.101	7.003.983.102	
	Insert with dip solder contacts			
	Length 10 mm	7.001.983.127	7.001.983.108	
	Insert with dip solder contacts			
Length 17 mm	7.001.983.137	7.001.983.118		
 Insert socket mating view				
 1.4 2.8 4.8				
		Required Contacts		
		3 x 2 mm	7.010.982.001	7.010.982.002

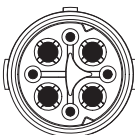
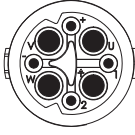
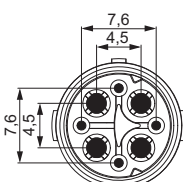
Contacts page 27 -28

Contacts page 27-28

Connectors M 16 / Inserts / Pinouts

Type	Part Number	Part Number	Inserts 4+3+PE
	Pins	Sockets	
Insert			
without contacts	7.003.943.101	7.003.943.102	 Insert pin mating view
Insert RAL 2003 (DESINA orange)			
without contacts	7.053.943.101	7.053.943.102	
Insert with dip solder contacts			
Length 10 mm	7.001.943.127	7.001.943.108	 Insert socket mating view
Insert with dip solder contacts			
Length 17 mm	7.001.943.137	7.001.943.118	
Required Contacts			
4 x 0,8 mm	7.010.980.801	7.010.980.802	
4 x 1,6 mm	7.010.981.601	7.010.981.602	

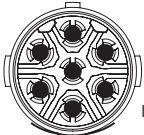
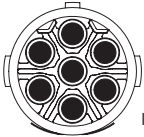
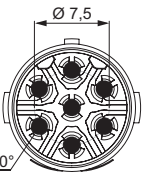
Contacts page 27-28

Type	Part Number	Part Number	Inserts 4+3+PE 630 V
	Pins	Sockets	
Insert			
without contacts	7.003.908.101	7.003.908.102	 Insert pin mating view
Insert RAL 2003 (DESINA orange)			
without contacts	7.053.908.101	7.053.908.102	
Insert with dip solder contacts			
Length 10 mm ¹⁾	7.001.908.127	7.001.908.108	 Insert socket mating view
Insert with dip solder contacts			
Length 17 mm ¹⁾	7.001.908.137	7.001.908.118	
Required Contacts			
4 x 0,8 mm	7.010.980.811	7.010.980.812	
4 x 1,25 mm	7.010.981.211	7.010.981.212	

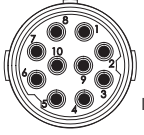
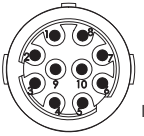
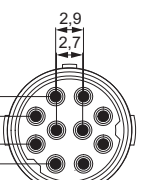
Contacts page 27-28

¹⁾ Under development

Connectors M 16 / Inserts / Pinouts

Inserts 6+PE	Type	Part Number	
		Pins	Sockets
 Insert pin mating view	Insert		
	without contacts	7.003.961.101	7.003.961.102
	Insert RAL 2003 (DESINA orange)		
 Insert socket mating view	without contacts	7.053.961.101	7.053.961.102
	Insert with dip solder contacts		
	Length 10 mm ¹⁾	7.001.961.127	7.001.961.108
 	Insert with dip solder contacts		
	Length 17 mm ¹⁾	7.001.961.137	7.001.961.118
	Required Contacts		
	7 x 1,25 mm	7.010.981.211	7.010.981.212

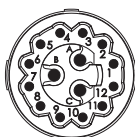
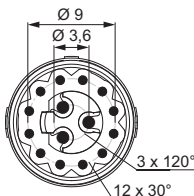
Contacts page 27-28

Inserts 10-pole	Type	Part Number	
		Pins	Sockets
 Insert pin mating view	Insert		
	without contacts	7.003.910.101	7.003.910.102
	Insert RAL 6018 (DESINA green)		
 Insert socket mating view	without contacts	7.053.910.101	7.053.910.102
	Insert with dip solder contacts		
	Length 10 mm	7.001.910.127	7.001.910.108
 	Insert with dip solder contacts		
	Length 17 mm	7.001.910.137	7.001.910.118
	Required Contacts		
	10 x 1 mm	7.010.981.001	7.010.981.002

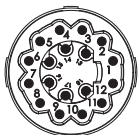
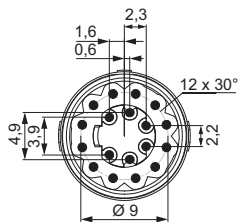
Contacts page 27-28

¹⁾ Under development

Connectors M 16 / Inserts / Pinouts

Type	Part Number	Part Number	Inserts 12+3-pole
	Pins	Sockets	
Insert			
without contacts	7.003.985.101	7.003.985.102	Insert pin mating view 
Insert with dip solder contacts			
Length 10 mm	7.001.985.127	7.001.985.108	
Insert with dip solder contacts			
Length 17 mm	7.001.985.137	7.001.985.118	
Required Contacts			
12 x 0,8 mm	7.010.980.801	7.010.980.802	Insert socket mating view 
3 x 1,25 mm	7.010.981.201	7.010.981.202	
			

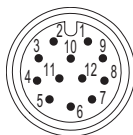
Contacts page 27-28

Type	Part Number	Part Number	Inserts 18-pole
	Pins	Sockets	
Insert			
without contacts	7.003.988.101	7.003.988.102	
Insert RAL 6018 (DESINA green)			
without contacts	7.053.988.101	7.053.988.102	
Insert with dip solder contacts			
Length 10 mm	7.001.988.127	7.001.988.108	
Insert with dip solder contacts			
Length 17 mm	7.001.988.137	7.001.988.118	
Required Contacts			
18 x 0,8 mm	7.010.980.801	7.010.980.802	

Contacts page 27-28

Connectors M 16 / Inserts / Pinouts

Inserts M 12 for TWINTUS M 16 / M 12 8-pole	Type	Part Number
 insert pin mating view	Pins Insert with solder contactsA712-7001908103	

Inserts M 12 for TWINTUS M 16 / M 12 12-pole	Type	Part Number
 insert pin mating view	Pins Insert with solder contactsA712-7001912103	

Connectors M 16 / Contacts

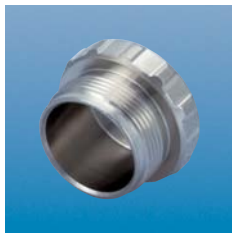
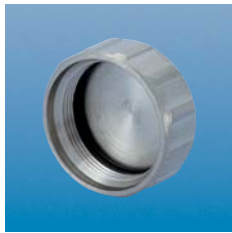
Type	Crimp Range	Part Number	Contacts
Crimp pin 0,8 mm, machined.....	0,08 – 0,34 mm ² (AWG 28 – 22)	7.010.980.801	
Crimp socket 0,8 mm, machined.....	0,08 – 0,34 mm ² (AWG 28 – 22)	7.010.980.802	
Crimp pin 0,8 mm, machined.....	0,08 – 0,34 mm ² (AWG 28 – 22)	7.010.980.811	
Crimp socket 0,8 mm, machined.....	0,08 – 0,34 mm ² (AWG 28 – 22)	7.010.980.812	
Crimp pin 1 mm, machined.....	0,08 – 0,75 mm ² (AWG 28 – 18)	7.010.981.001	
Crimp socket 1 mm, machined.....	0,08 – 0,75 mm ² (AWG 28 – 18)	7.010.981.002	
Crimp pin 1 mm, machined.....	0,14 – 1 mm ² (AWG 26 – 17)	7.010.901.001	
Crimp socket 1 mm, machined.....	0,08 – 0,56 mm ² (AWG 28 – 20)	7.010.901.012	
Crimp socket 1 mm, machined.....	0,34 – 1 mm ² (AWG 22 – 17)	7.010.901.002	
Crimp Tool Settings see page 31 / 32 Please see assembly instructions on page 40			

Connectors M 16 / Contacts

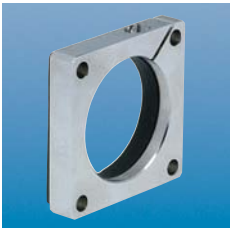
Contacts	Type	Crimp Range	Part Number
	Crimp pin 1,25 mm, machined.....	0,5 – 1,5 mm ² (AWG 20 – 16).....	7.010.981.201
	Crimp socket 1,25 mm, machined.....	0,5 – 1,5 mm ² (AWG 20 – 16).....	7.010.981.202
	Crimp pin 1,25 mm, machined.....	0,34 – 1,5 mm ² (AWG 20 – 16).....	7.010.981.211
	Crimp socket 1,25 mm, machined.....	0,34 – 1,5 mm ² (AWG 20 – 16).....	7.010.981.212
	Crimp pin 1,6 mm, machined.....	0,34 – 1,5 mm ² (AWG 22 – 16).....	7.010.981.601
	Crimp socket 1,6 mm, machined.....	0,34 – 1,5 mm ² (AWG 22 – 16).....	7.010.981.602
	Crimp pin 2 mm, machined.....	1,0 – 2,5 mm ² (AWG 17 – 14).....	7.010.982.001
	Crimp socket 2 mm, machined.....	1,0 – 2,5 mm ² (AWG 17 – 14).....	7.010.982.002

Crimp Tool Settings see page 31 / 32
Please see assembly instructions on page 40

Connectors M 16 / Accessories

Type	Part Number	Accessories
Plastic protective cap for connectors with male thread for connectors with female thread	7.000.980.161 7.000.980.162	
Brass protective cap for connectors with female thread	7.010.900.163	
Brass protective cap for connectors with male thread	7.010.900.162	
Brass protective cap with chain for connectors with female threadLength 70 mm	7.010.9S0.705	
Brass protective cap with chain for connectors with male threadLength 70 mm	7.010.9S0.704	

Connectors M 16 / Accessories

Accessories	Type	Part Number
	Crimp tool for manual crimping of machined crimp contacts for signal connectors M 16 and M 23	7.000.900.904
	See page 84 for crimp tool instructions	
	Adaptor flange for Straight Connectors	7.010.900.135
	Conduit adaptor	DN 107.010.900.200 Snapflex 16.....7.010.900.201 DN 127.010.900.202 Snapflex 16.....7.010.900.203
	EMC-sheet for TWINTUS Flange 20 x 20	7.040.848.101
	for TWINTUS Flange 25 x 25	7.040.848.102
	Plastic protective cap for TWINTUS	
	TWINTUS M 16	7.000.848.101
	TWINTUS M 16 / M 12	7.000.848.102

Crimp Tool for Connectors M 16

Crimp Tool Setting for HUMMEL Crimp Contacts (Crimp Tool 7.000.900.904)

Part Number	Crimp Contact	Cross Section (mm ²)	AWG	Crimp Tool Setting mm	Locator Setting
7.010.980.801	Crimp pin 0,8 mm	0,08	AWG 28	0,57	10
		0,14	AWG 26	0,60	
		0,25	AWG 24	0,64	
		0,34	AWG 22	0,73	
7.010.980.802	Crimp socket 0,8 mm	0,08	AWG 28	0,57	10
		0,14	AWG 26	0,60	
		0,25	AWG 24	0,64	
		0,34	AWG 22	0,73	
7.010.980.811	Crimp pin 0,8 mm	0,08	AWG 28	0,57	B7
		0,14	AWG 26	0,60	
		0,25	AWG 24	0,64	
		0,34	AWG 22	0,73	
7.010.980.812	Crimp socket 0,8 mm	0,08	AWG 28	0,57	B8
		0,14	AWG 26	0,60	
		0,25	AWG 24	0,64	
		0,34	AWG 22	0,73	
7.010.981.001	Crimp pin 1 mm	0,08	AWG 28	0,60	7
		0,14	AWG 26	0,65	
		0,25	AWG 24	0,67	
		0,34	AWG 22	0,71	
		0,56	AWG 20	0,75	
		0,75	AWG 18	0,82	
7.010.981.002	Crimp socket 1 mm	0,08	AWG 28	0,60	8
		0,14	AWG 26	0,63	
		0,25	AWG 24	0,66	
		0,34	AWG 22	0,69	
		0,56	AWG 20	0,75	
		0,75	AWG 18	0,83	
7.010.901.001	Crimp pin 1 mm	0,14	AWG 26	0,70	1
		0,25	AWG 24	0,76	
		0,34	AWG 22	0,82	
		0,50	AWG 20	0,90	
		0,75	AWG 18	1,00	
		1,0	AWG 17	1,10	
7.010.901.012	Crimp socket 1 mm (0,08-0,56 mm ²)	0,08	AWG 28	0,75	2
		0,14	AWG 26	0,78	
		0,25	AWG 24	0,82	
		0,34	AWG 22	0,86	
		0,56	AWG 20	0,90	

These values are only guidelines and actual conductor cross sections depend on manufacturer tolerances.

See page 40 for crimp tool instructions

Crimp Tool for Connectors M 16

Crimp Tool Setting for HUMMEL Crimp Contacts (Crimp Tool 7.000.900.904)

Part Number	Crimp Contact	Cross Section (mm ²)	AWG	Crimp Tool Setting mm	Locator Setting
7.010.901.002	Crimp socket 1 mm (0,34 – 1 mm ²)	0,34	AWG 22	0,77	2
		0,56	AWG 20	0,82	
		0,75	AWG 18	0,88	
		1,0	AWG 17	0,95	
7.010.981.201	Crimp pin 1,25 mm	0,5	AWG 20	0,70	2
		0,75	AWG 18	0,73	
		1,0	AWG 17	0,79	
		1,5	AWG 16	0,88	
7.010.981.202	Crimp socket 1,25 mm	0,5	AWG 20	0,70	2
		0,75	AWG 18	0,73	
		1,0	AWG 17	0,79	
		1,5	AWG 16	0,88	
7.010.981.211	Crimp pin 1,25 mm	0,34	AWG 22	0,80	B9
		0,5	AWG 20	0,84	
		0,75	AWG 18	0,90	
		1,0	AWG 17	1,00	
		1,5	AWG 16	1,10	
7.010.981.212	Crimp socket 1,25 mm	0,34	AWG 22	1,00	B10
		0,5	AWG 20	1,04	
		0,75	AWG 18	1,10	
		1,0	AWG 17	1,20	
		1,5	AWG 16	1,30	
7.010.981.601	Crimp pin 1,6 mm	0,34	AWG 22	0,80	6
		0,56	AWG 20	0,84	
		0,75	AWG 18	0,90	
		1,0	AWG 17	1,00	
		1,5	AWG 16	1,10	
7.010.981.602	Crimp socket 1,6 mm	0,34	AWG 22	0,83	9
		0,56	AWG 20	0,90	
		0,75	AWG 18	0,97	
		1,0	AWG 17	1,02	
		1,5	AWG 16	1,10	
7.010.982.001	Crimp pin 2 mm	1,0	AWG 17	1,35	4
		1,5	AWG 16	1,45	
		2,5	AWG 14	1,60	
7.010.982.002	Crimp socket 2 mm	1,0	AWG 17	1,35	5
		1,5	AWG 16	1,45	
		2,5	AWG 14	1,60	

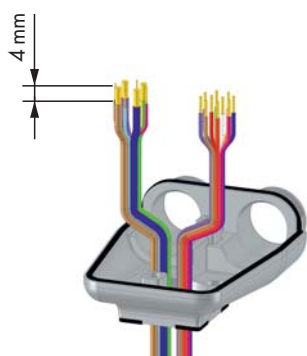
These values are only guidelines and actual conductor cross sections depend on manufacturer tolerances.

See page 40 for crimp tool instructions

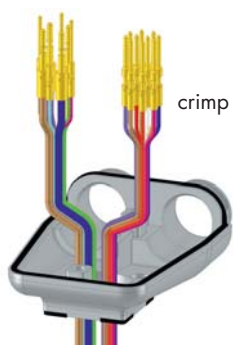
Connectors M 16 / Assembly Instructions

TWINTUS

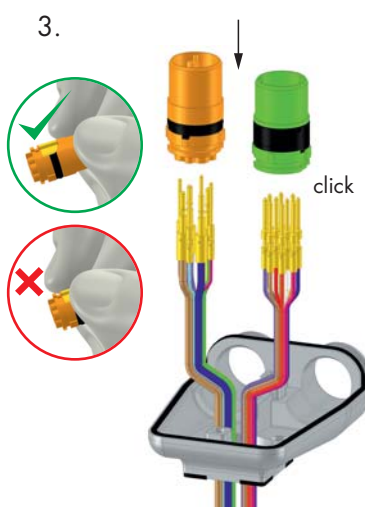
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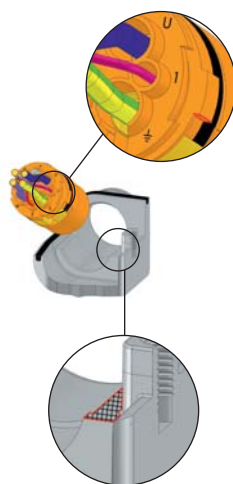
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3.



4.



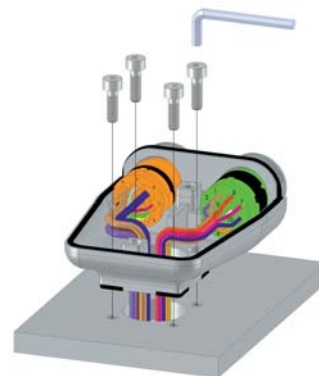
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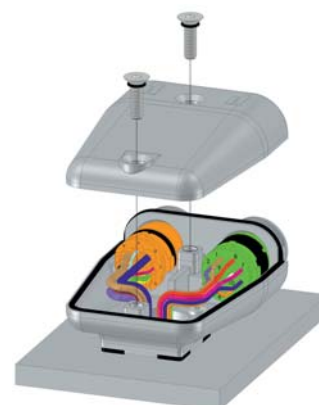
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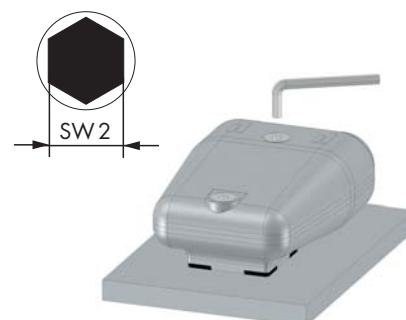
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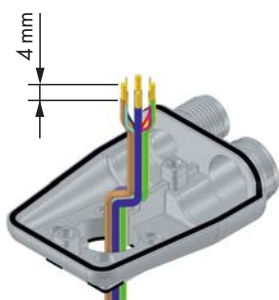
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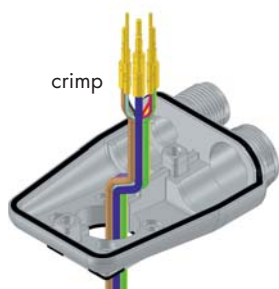
Connectors M 16 / Assembly Instructions

TWINTUS M16 / M12

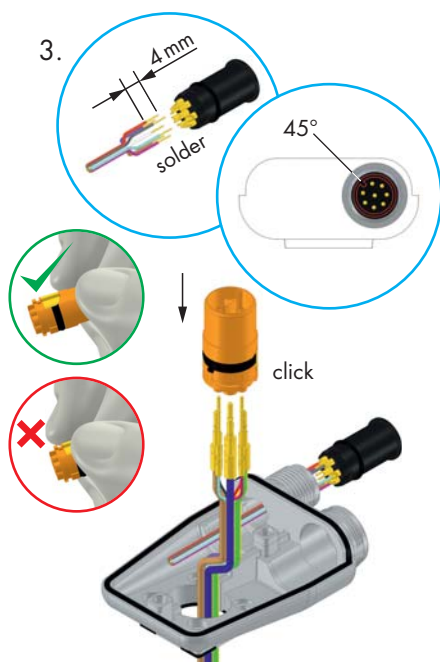
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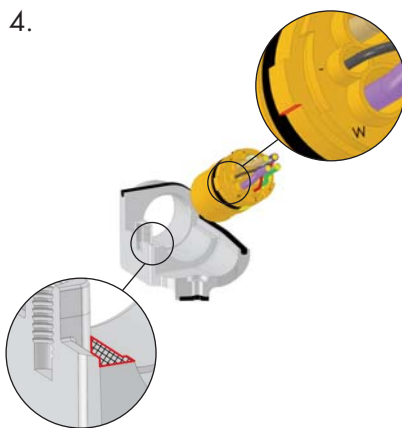
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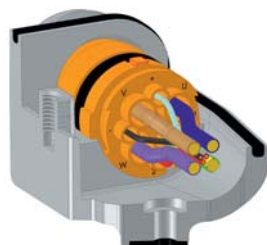
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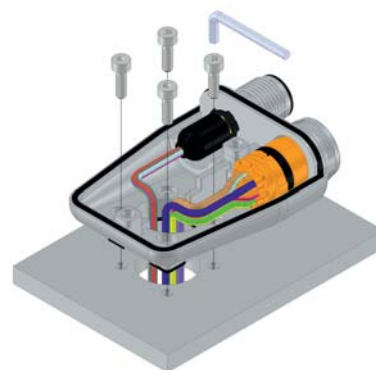
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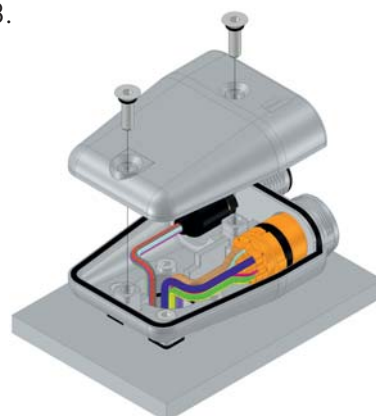
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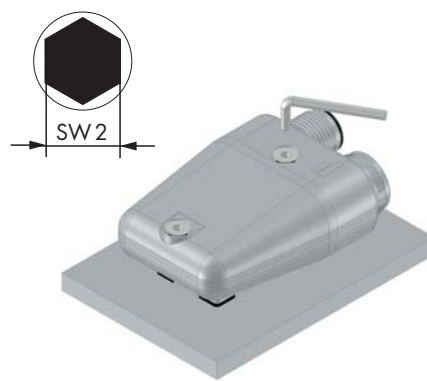
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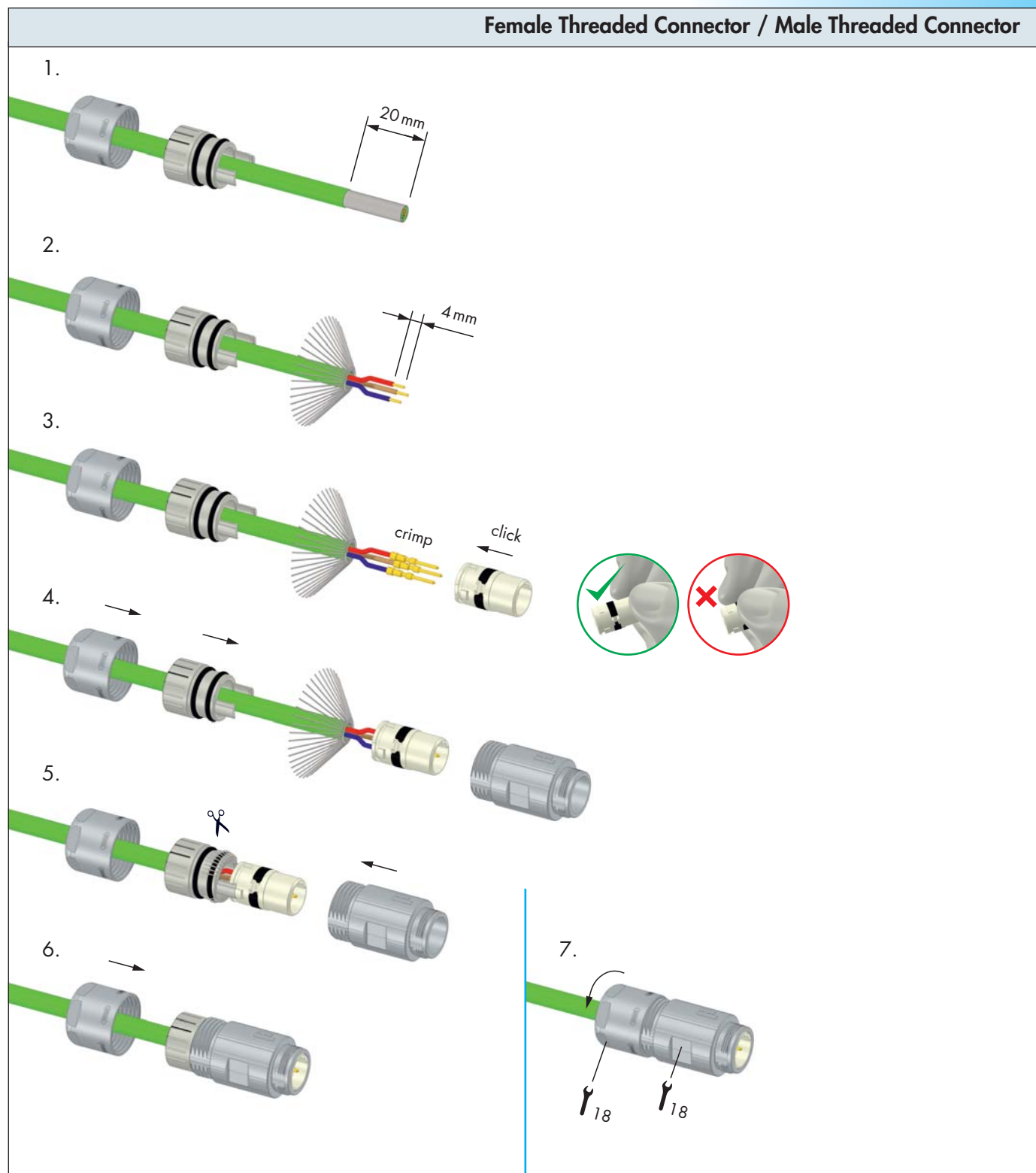
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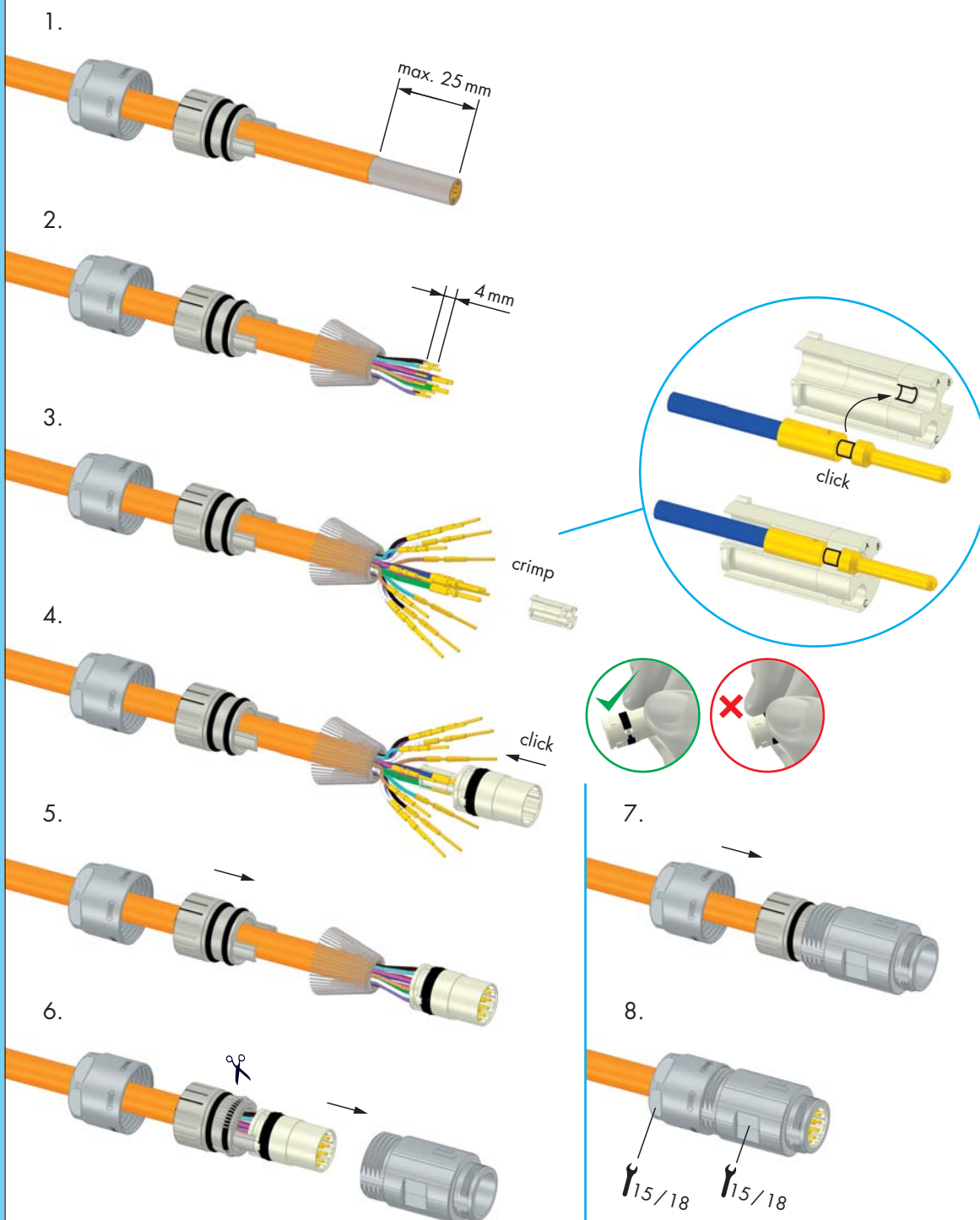


Connectors M 16 / Assembly Instructions



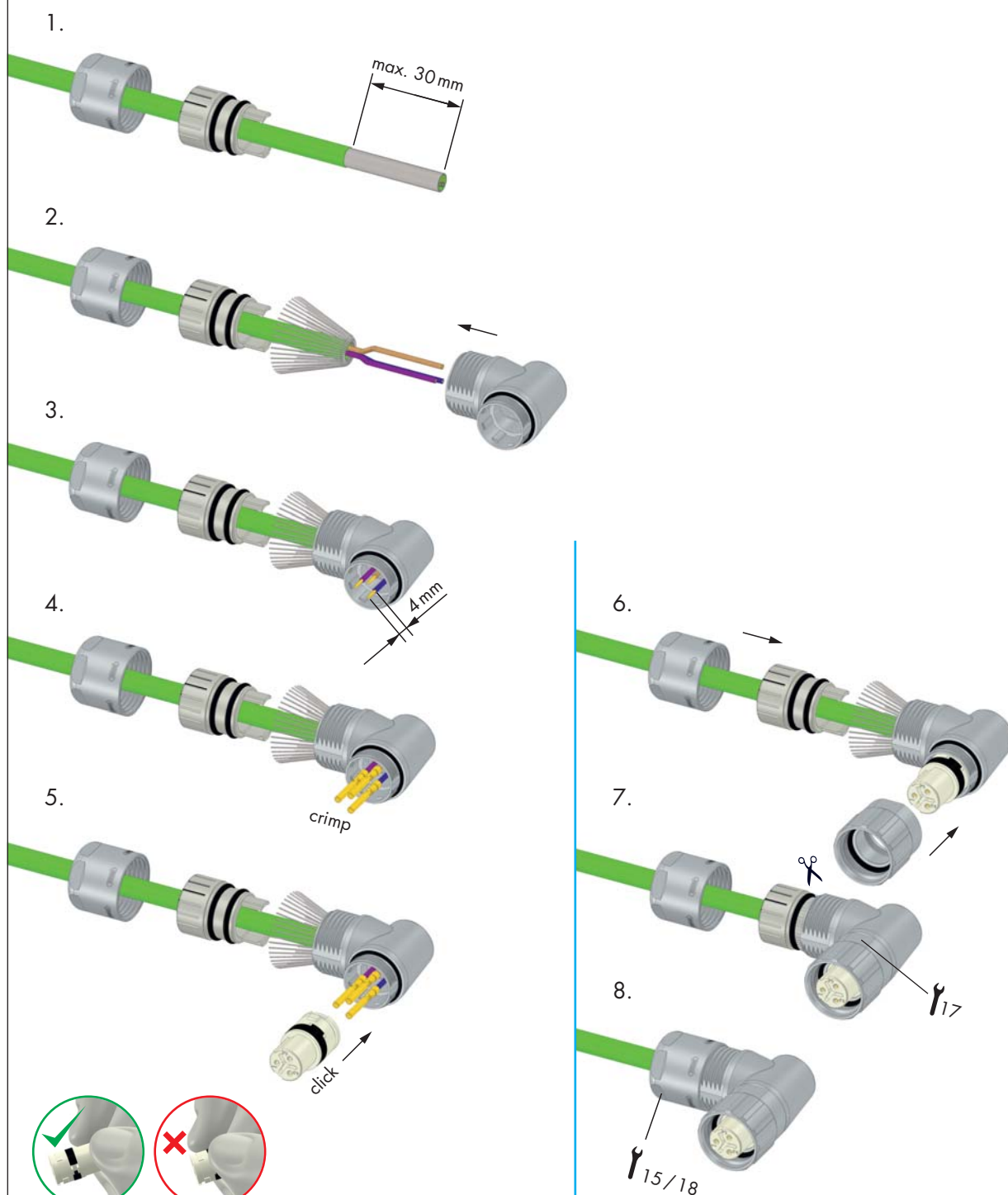
Connectors M 16 / Assembly Instructions

Female Threaded Connector / Male Threaded Connector 12+3



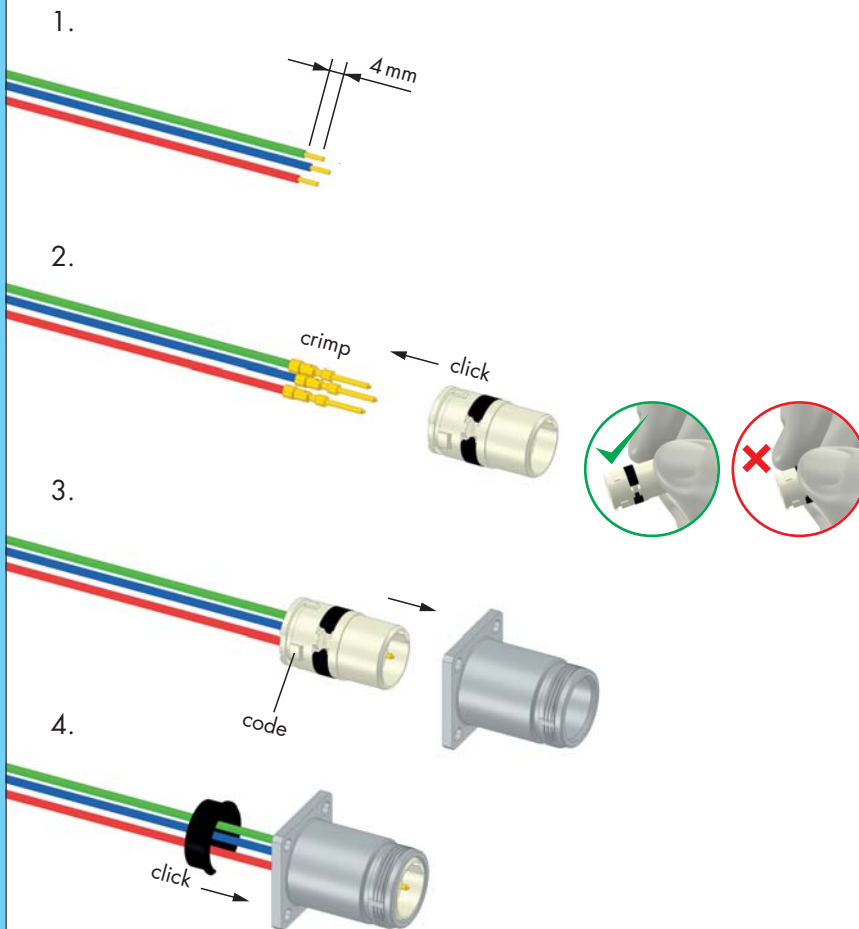
Connectors M 16 / Assembly Instructions

Right angle connector with positioning



Connectors M 16 / Assembly Instructions

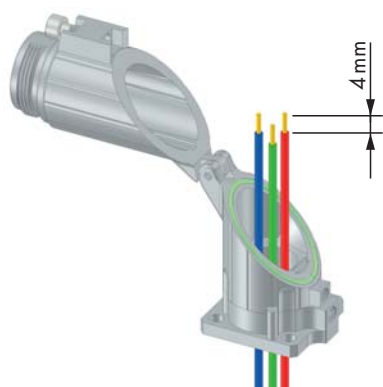
Panel Connector



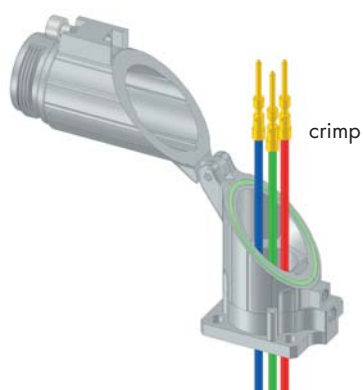
Connectors M 16 / Assembly Instructions

Right Angle Panel Connector

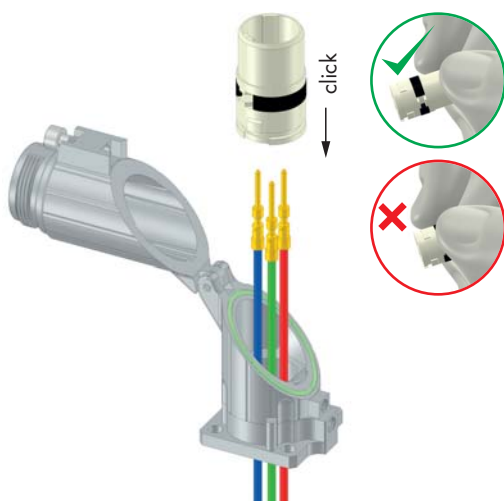
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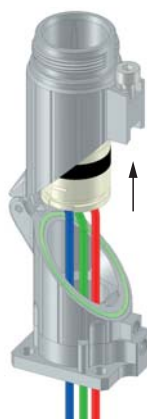
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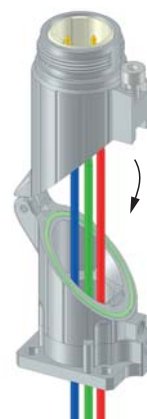
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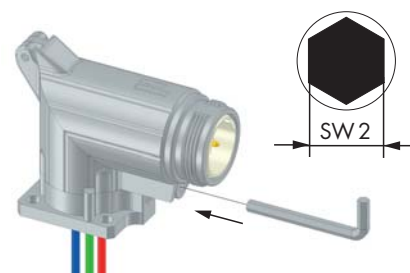
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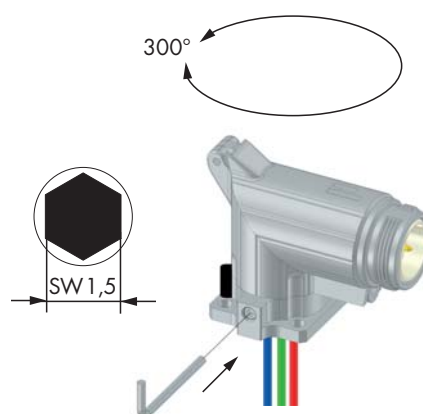
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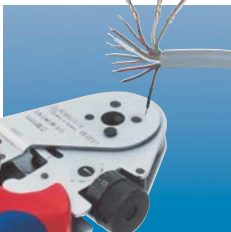


7.



Crimping, Assembly and Disassembly of Contacts

Crimping, Assembly and Disassembly of Contacts



Crimping

- Remove conductor insulation 4 mm (.16") max.
- Select appropriate Crimp tool setting (see page 31 - 32)
- Push crimp contact into opening of crimping tool
- Insert stripped wire into the funnel shaped end of the crimp contact
- Squeeze handles of crimping tool together connect contact to wire



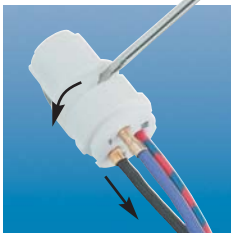
Assembly

- Remove crimped assembly and pull on wire to test connection
- Push into desired position of insert

Disassembly of Contacts from Insert

A small screwdriver is needed to remove the contacts from the insert.

- Release the white ring by a screwdriver out of the insert
- Move the misplaced contacts out of the insert
- Enter the ring back into the insert
- Push the contacts back into insert



Shielding

- Assemble strain relief insert with insert
- Fold stranding of the shield back over the first O-Ring of the strain relief insert
- Cut back the overextending braid



The stranding of the shield is not allowed to touch the second O-Ring. Otherwise the assembly may not be proof.

M 23 Fast Ethernet PoE



Housings

page 44



Inserts

page 46



Accessories

page 51



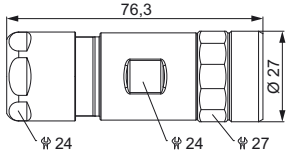
M 23 Fast Ethernet PoE Connectors

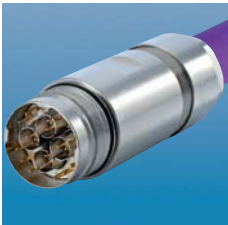
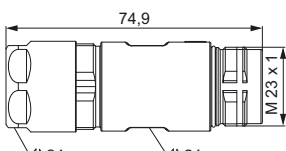
Mechanical Data	Materials and Technical Data
Housing	Copper-Zinc alloy Die Cast
Housing surface	Nickel plated
Inserts (for contacts)	PBT UL-94 V0, PA6
Contacts	Brass Alloy
Contact surface at point of contact	Nickel and gold plated (0,25µm Au)
Minimum mating cycles	> 1000
Seals / O-Rings	Perbunan NBR (Standard)
Temperature range	-40° C – 125° C (-40 °F – 257 °F)
Type of contacts	Crimp, dip-solder (PCB)
Protection	IP 67 per EN 60 529 (connected), NEMA 4x
Cable diameter range	11 – 17 mm (.43" – .67")

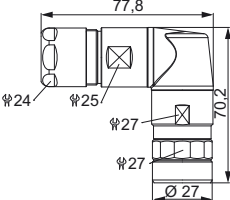
Electrical Data		
Number of positions	20 (4x2 + 12)	
Number of contacts	4x2	12
Contact-Ø [mm]	0,6	1
AWG [mm²]	0,08 – 0,34	0,14 – 1 / 1,5
Nominal current ¹⁾ [A]	2	8 ¹⁾
Nominal voltage ²⁾ [V~] degree of protection 3 ⁴⁾	60	160
Test voltage (Breakdown voltage) ³⁾ [V~]	500	1500
Insulation resistance [MΩ]	> 10 ⁶	> 10 ⁶
Max. contact resistance [mΩ]	3	3
Impedance [Ω] (at 100MHz)	100	–

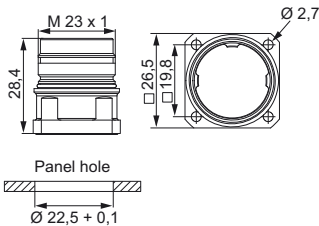
¹⁾, ²⁾, ³⁾, ⁴⁾ See Technical Information page 14 ¹⁾ for single contacts even 10A possible

M 23 Fast Ethernet PoE Connectors / Housing

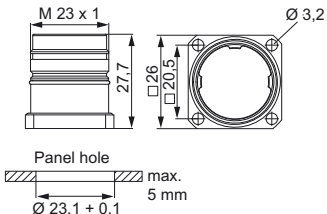
Straight Female Connector	Cable-Ø	Part Number
 	11-17 mm (.43 – .67")	7.108.600.000
Inserts page 46 • Assembly instructions page 48		

Straight Connector, Male Thread	Cable-Ø	Part Number
 	11-17 mm (.43 – .67")	7.208.600.000
Inserts page 46 • Assembly instructions page 48		

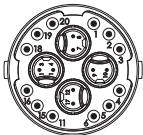
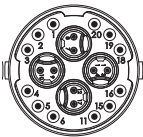
Right Angle Connector, Female Thread, rotating	Cable-Ø	Part Number
 	11-17 mm (.43 – .67")	7.308.600.000
Inserts page 46 • Assembly instructions page 50		

Panel Connector, Male Thread, Front Mounting	Type	Part Number
 	4 x holes Ø 2,7 mm (.11") ..	7.408.000.000 Flange 26 x 26 mm
Inserts page 46 • Assembly instructions page 49		

M 23 Fast Ethernet PoE Connectors / Housing

Type	Part Number	Panel Connector, Rear Mounting	
4 x holes Ø 3,2 mm (.13") Flange 26 x 26 mm	..7.468.000.000		
Inserts page 46 • Assembly instructions page 49			

M 23 Fast Ethernet PoE Connectors / Inserts / Pinouts / Contacts

Inserts (4 x 2) + 12		Type	Part Number	Part Number
	Insert pin mating view		Pins	Sockets
		Insert		
	Insert socket mating view	without contacts	7.003.920.101	7.003.920.102
		Insert with dip solder contacts	7.001.920.107	7.001.920.108
		Required Contacts		
		8 x 0,6	7.010.980.641	7.010.980.602
		12 x 1	7.010.901.045	7.010.901.002
			7.010.901.049	7.010.901.012
				7.010.901.022
				7.010.901.046

Contacts	Type	Part Number	Part Number
	Crimp pin 0,6 mm, machined....	0,08 – 0,34 mm².....	7.010.980.641
	Crimp socket 0,6 mm, machined....	0,08 – 0,34 mm².....	7.010.980.602
	Crimp pin 1 mm, machined.....	0,14 – 1 mm².....	7.010.901.049
		0,75 – 1,5 mm².....	7.010.901.045
	Crimp socket 1 mm, machined...	0,08 – 0,56 mm².....	7.010.901.012
		0,34 – 1 mm².....	7.010.901.002
		0,75 – 1,5 mm².....	7.010.901.022
		1 – 1,75 mm².....	7.010.901.046
See page 47 for crimp tool instructions and proper setting			

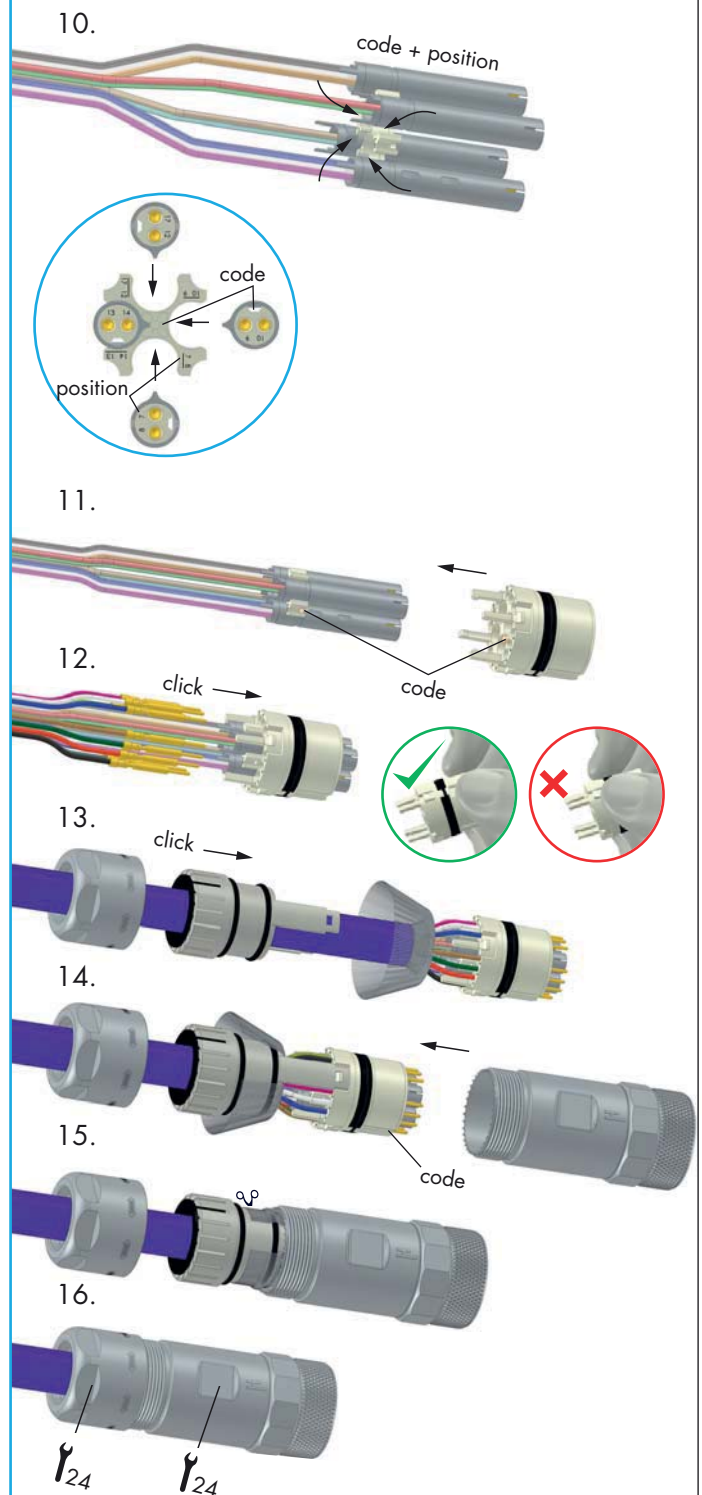
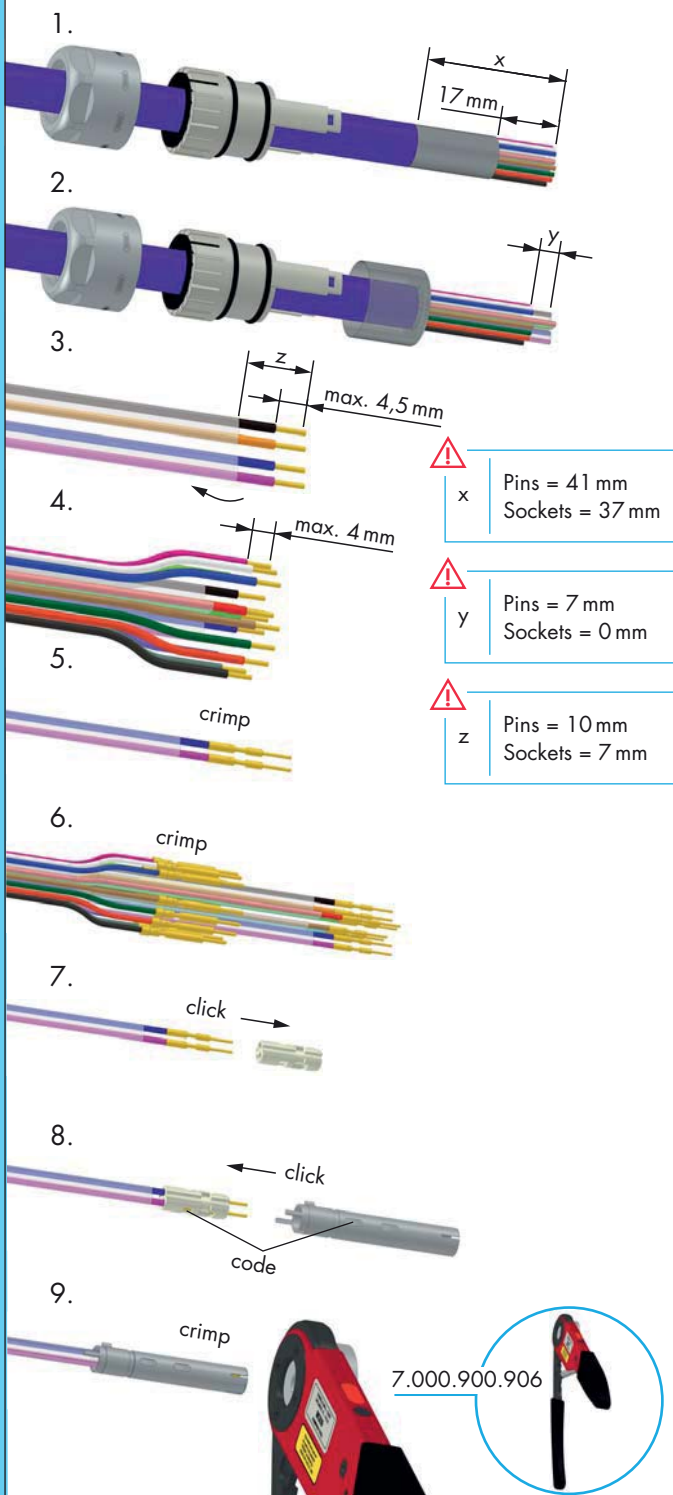
Crimp Tool Settings for crimp contacts M 23 Fast Ethernet PoE

Crimp Tool Settings for HUMMEL Crimp Contacts (Crimp Tool 7.000.900.907)					
Part Number	Crimp Contact	Cross Section (mm ²)	AWG	Crimp Tool Setting mm	Locator Setting
7.010.980.641	Crimp pin 0,6 mm (0,08 – 0,34 mm ²)	0,08	AWG 28	0,57	B 1
		0,14	AWG 26	0,60	
		0,25	AWG 24	0,64	
		0,34	AWG 22	0,73	
7.010.980.602	Crimp socket 0,6 mm (0,08 – 0,34 mm ²)	0,08	AWG 28	0,57	B 2
		0,14	AWG 26	0,60	
		0,25	AWG 24	0,64	
		0,34	AWG 22	0,73	
7.010.901.049	Crimp pin 1 mm (0,14 – 1,0 mm ²)	0,14	AWG 26	0,70	B 3
		0,25	AWG 24	0,76	
		0,34	AWG 22	0,82	
		0,56	AWG 20	0,90	
		0,75	AWG 18	1,00	
		1,00	AWG 17	1,10	
7.010.901.045	Crimp pin 1 mm (0,75 – 1,5 mm ²)	0,75	AWG 18	0,80	B 5
		1,00	AWG 17	0,85	
		1,50	AWG 16	0,95	
7.010.901.012	Crimp socket 1 mm (0,08 – 0,56 mm ²)	0,08	AWG 28	0,75	B 4
		0,14	AWG 26	0,78	
		0,25	AWG 24	0,82	
		0,34	AWG 22	0,88	
		0,56	AWG 20	0,90	
7.010.901.002	Crimp socket 1 mm (0,34– 1,0 mm ²)	0,34	AWG 22	0,77	B 4
		0,56	AWG 20	0,82	
		0,75	AWG 18	0,88	
		1,00	AWG 17	0,95	
7.010.901.022	Crimp socket 1 mm (0,75 – 1,5 mm ²)	0,75	AWG 18	0,80	B 4
		1,00	AWG 17	0,86	
		1,50	AWG 16	0,95	
7.010.901.046	Crimp socket 1 mm (1 – 1,75 mm ²)	1,00	AWG 17	0,85	B 6
		1,50	AWG 16	0,95	
		1,75	AWG 15	1,00	

These values are only guidelines and actual conductor cross sections depend on manufacturer tolerances.

M 23 Fast Ethernet PoE Connectors / Assembly Instructions

Straight Connector Male / Female Thread



Panel Connector

1. max. 4,5 mm
max. 4 mm
Pins = 10 mm
Sockets = 7 mm

2. crimp

3. crimp

4. crimp

5. click

6. click

7. crimp

8. code + position

9. code

10. click

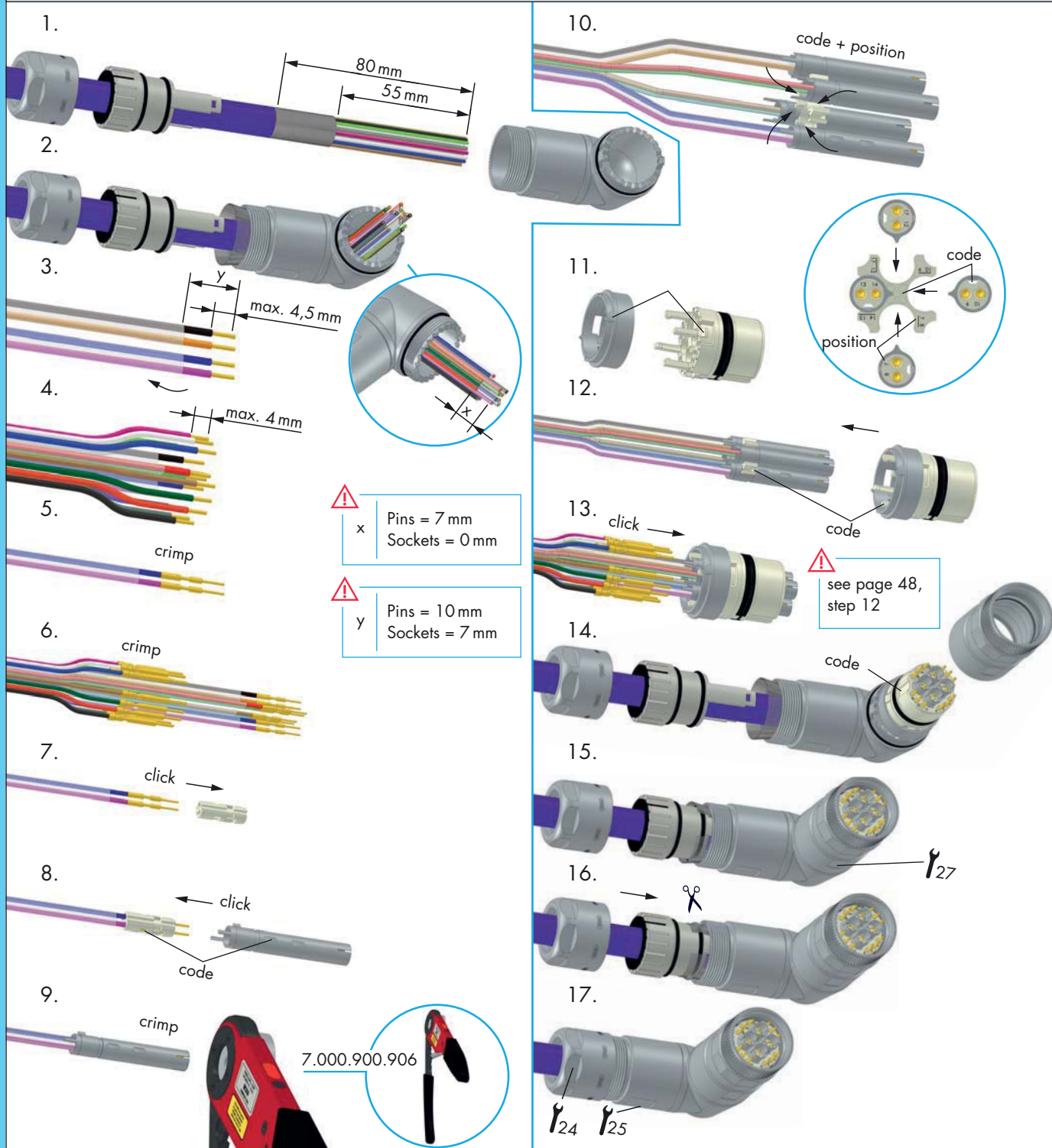
11. click

12. code

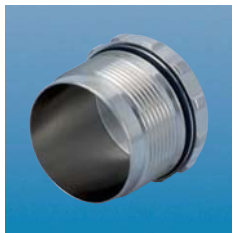
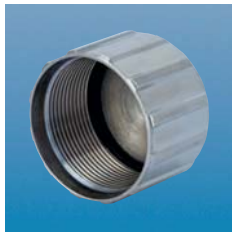
7.000.900.906

M 23 Fast Ethernet PoE Connectors / Assembly Instructions

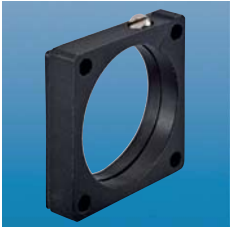
Right Angle Connector



M 23 Fast Ethernet PoE Connectors / Accessories

Type	Part Number	Accessories
Plastic protective cap for connectors with male thread	7.000.900.101	
for connectors with female thread	7.000.900.102	
Brass protective cap for connectors with female thread	7.010.900.183	
Brass protective cap with chain for connectors with female thread		
Length 70 mm	7.010.9S0.783	
Length 100 mm	7.010.9S1.083	
Brass protective cap for connectors with male thread	7.010.908.102	
Conduit adaptor	Snapflex 16.....7.010.900.204 DN 127.010.900.205 Snapflex 20.....7.010.900.206 DN 147.010.900.207 Snapflex 25.....7.010.900.208 DN 177.010.900.209	
Adaptor flange for Straight Connectors	7.010.900.128	

M 23 Fast Ethernet PoE Connectors / Accessories

Accessories	Type	Part Number
	Adapter flange for moulded connectors.....	7.010.900.139
	Multi-Bus adapter wired through I:I (excentric) Multi-Bus I, Female Thread, Sockets 17pole Multi-Bus II, Male Thread, Pins	7.010.900.143
	Multi-Bus I, Female Thread, Pins, 17pole Multi-Bus II, Male Thread, Sockets	7.010.900.144
	Control Cabinet adapter for Multibus II - AIDA Rear Mounting, central locking.....	7.010.900.145
	I/O adapter module to scan or feed signals Rear Mounting, central locking.....	7.010.900.146
	Manual Crimp tool for EMC sleeves M 23 Fast Ethernet PoE ..	7.000.900.906
	Manual Crimp tool for turned contacts M 23 Fast Ethernet PoE.....	7.000.900.907

Connectors M 23 RJ 45



Housings

page 56



Accessories

page 59

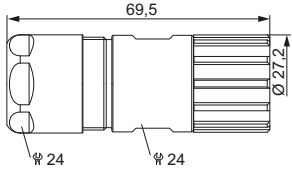


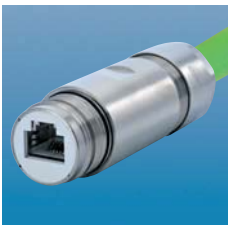
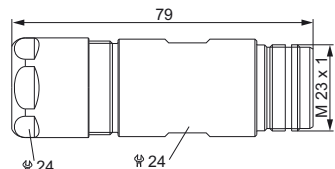
M 23 RJ45 Control Signal Connectors

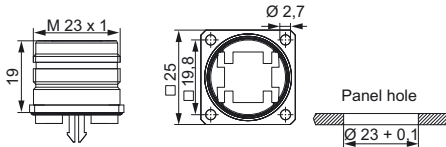
Technical Data	Materials and Technical Data
Housing	Brass Alloy, Die Cast
Housing Surface	Nickel Plated
Inserts (for contacts)	PBT UL-94 V0, PA 6
Contacts	Brass Alloy
Contact Surface at point of contact	Depends on RJ 45 type used
Seals / O-Rings	NBR / FKM (Viton)
Temperature Range	Depends on RJ 45 type used
Degree of Protection	IP 67 / IP 69 K per EN 60529 (mated)
Cable diameter range	3 - 7 / 7 - 12 / 11 - 17mm
Number of Positions	4 / 6 / 8 poles, optional 4 + 2 / 6 + 2 / 8 + 2
Nominal Current ¹⁾ [A]	Depends on RJ 45 type used
Nominal Voltage ²⁾ [V~]	Depends on RJ 45 type used
Test Voltage [V~]	Depends on RJ 45 type used
Insulation Resistance [MΩ]	Depends on RJ 45 type used
Max. Crossover Resistance [mΩ]	Depends on RJ 45 type used
Max. Data Rate	Depends on RJ 45 type used

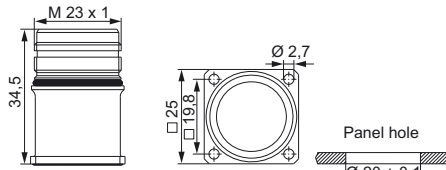
^{1), 2)} See Technical Information page 14

Connectors M 23 RJ 45 / Housing

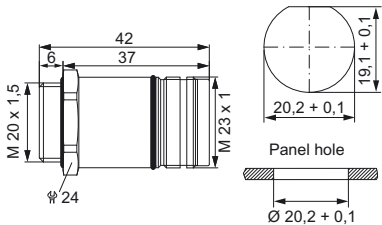
Straight Connector Female Thread	Cable-Ø	Part Number
 	3 – 7 mm (.12 - .28")7.R10.400.000 Connector with insert for patch cable Suitable patch cable and plugs can be recommended	Assembly instructions page 61

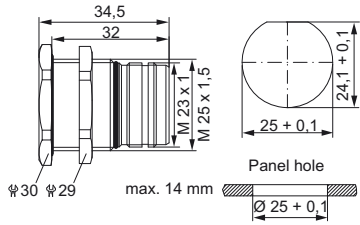
Straight Connector Male Thread	Cable-Ø	Part Number
 	3 – 7 mm (.12 - .28")7.R20.408.000 Incl. 8 poles coupler, fully occupied	Assembly instructions page 62

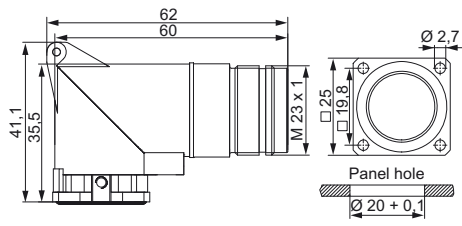
Panel Connector Front Mount, dip solder insert	Type	Part Number
 	4 holes 2.7 mm, Flange7.R40.008.000 Incl. 8 poles dip solder insert 4 holes 2.7 mm, Flange7.R40.082.000 Incl. 8 + 2 poles dip solder insert	

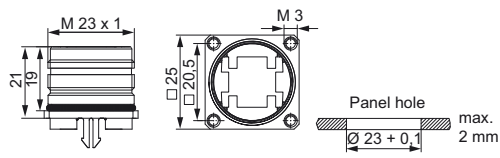
Panel Connector, Front Mount	Type	Part Number
 	with vibration protection 4 holes 2.7 mm, Flange7.R41.008.000 Incl. 8 poles coupler, fully occupied	

Connectors M 23 RJ 45 / Housing

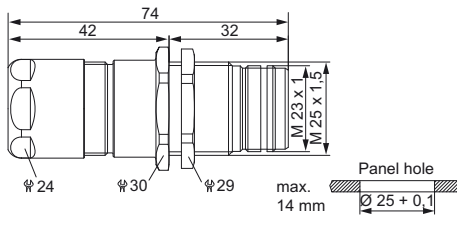
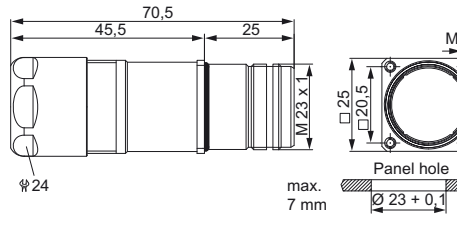
Type	Part Number	Single Hole Panel Connector	
Front Mount M 20 x 1,5 thread7.R42.008.000 Incl. 8 poles coupler, fully occupied Optional: Gasket M 20 x 1,5, Locking Nut			

Type	Part Number	Single Hole Panel Connector	
Rear Mount M 25 x 1,5 thread7.R50.008.000 Incl. 8 poles coupler, fully occupied M 25 x 1,5 Locking Nut included			

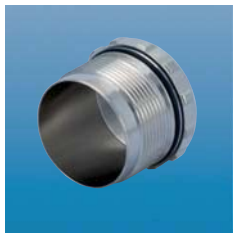
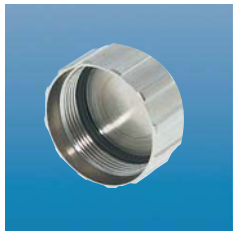
Type	Part Number	Right Angle Panel Connector, Male Thread	
300° rotating, locking screw at flange 4 holes 2.7 mm, Flange7.R43.008.000 Incl. 8 poles coupler, fully occupied Optional: Gasket Simple installation with M 2.5 screws			

Type	Part Number	Panel Connector Rear Mount, dip solder insert	
with vibration protection 4x M 3 thread, Flange7.R45.008.000 Incl. 8 poles dip solder insert 4x M 3 thread, Flange7.R45.082.000 Incl. 8 + 2 poles dip solder insert			

Connectors M 23 RJ 45 / Housing

Single Hole Panel Connector with strain relief	Cable-Ø	Part Number
 	Single Hole, Rear Mount , M 25 x 1,5 thread 3 – 7 mm (.12 - .28")7.R52.408.000 Incl. 8 poles coupler, fully occupied M 25 x 1,5 Locking Nut included	
Panel Connector with strain relief	Cable-Ø	Part Number
 	4x M 2,5 thread, Flange, Rear Mount 3 – 7 mm (.12 - .28")7.R47.408.000 Incl. 8 poles coupler, fully occupied	

Connectors M 23 RJ 45 / Accessories

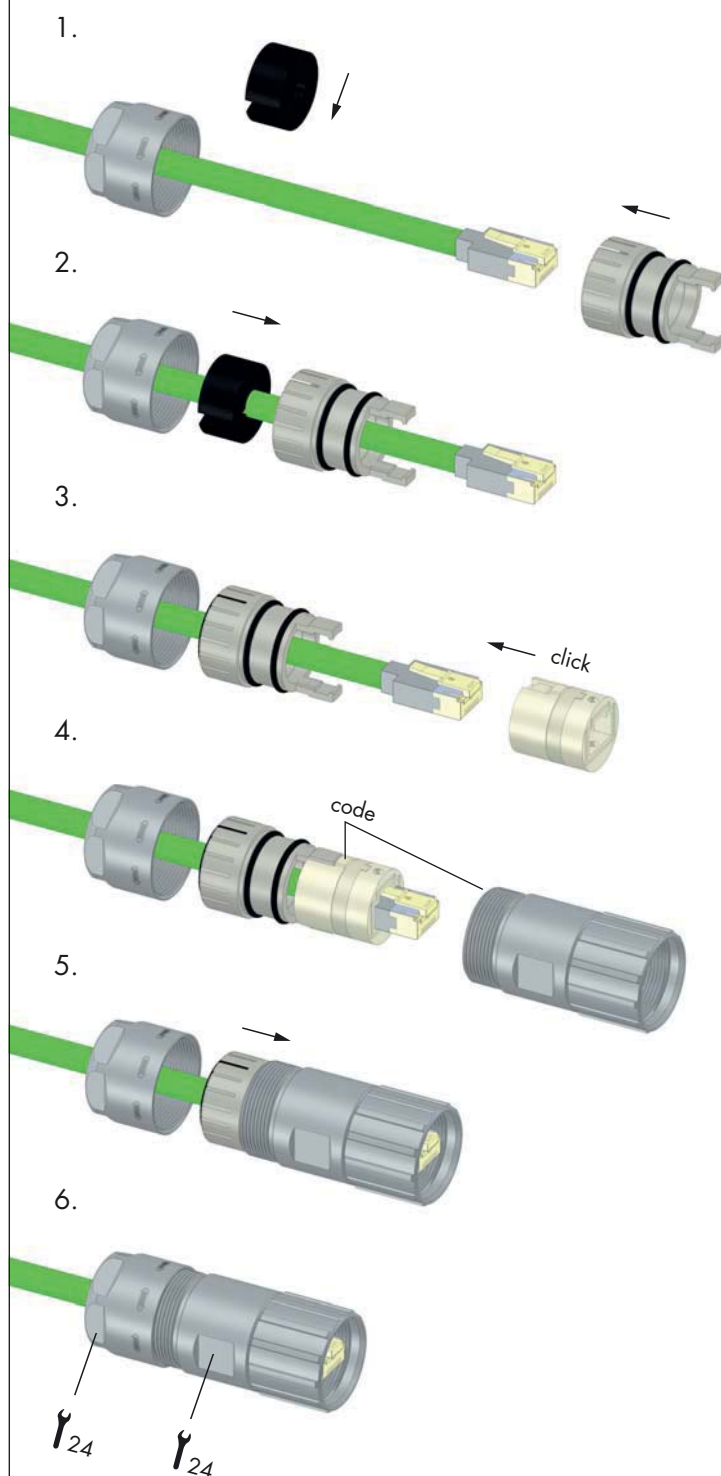
Type	Part Number	Accessories
Plastic protective cap for connectors with male thread7.000.900.101 for connectors with female thread7.000.900.102		
Brass protective cap for connectors with female thread7.010.900.183		
Brass protective cap for connectors with male thread7.010.900.102		
Brass protective cap with chain for connectors with female threadLength 70 mm7.010.9S0.783Length 100 mm7.010.9S1.083		
Brass protective cap with chain for connectors with male threadLength 70 mm7.010.9S0.702Length 100 mm7.010.9S1.002		
Adapter flange for straight connectors7.010.900.128		

Connectors M 23 RJ 45 / Accessories

Accessories	Type	Part Number
	Adapter for Conduit Fittings	Snapflex 16..... 7.010.900.204
		DN 12 7.010.900.205
		Snapflex 20..... 7.010.900.206
		DN 14 7.010.900.207
		Snapflex 25..... 7.010.900.208
		DN 17 7.010.900.209
	Suitable patch cable	on request
	Field attachable RJ45 connector	8-poleA7RJ-081M41
		8+2-poleA7RJ-821M51

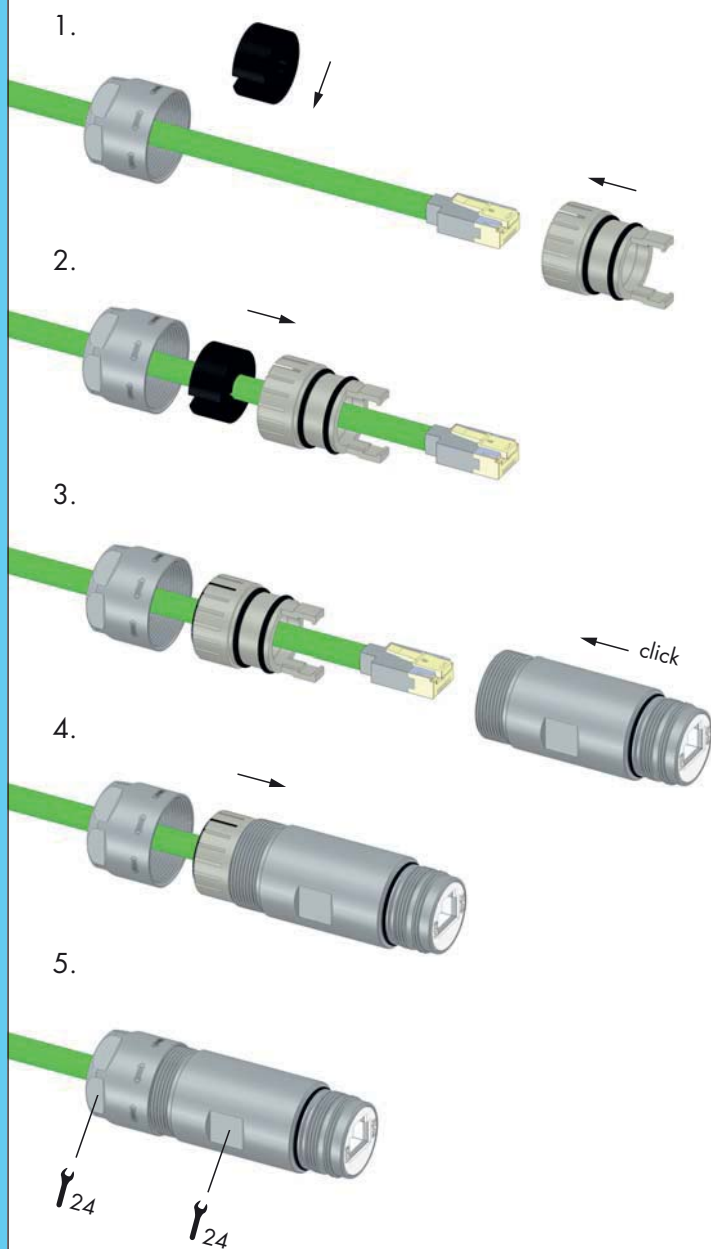
Connectors M 23 RJ45 / Assembly Instructions

Straight Connector, Female Thread



Connectors M 23 RJ 45 / Assembly Instructions

Male Threaded Connector



Signal Connectors M 23



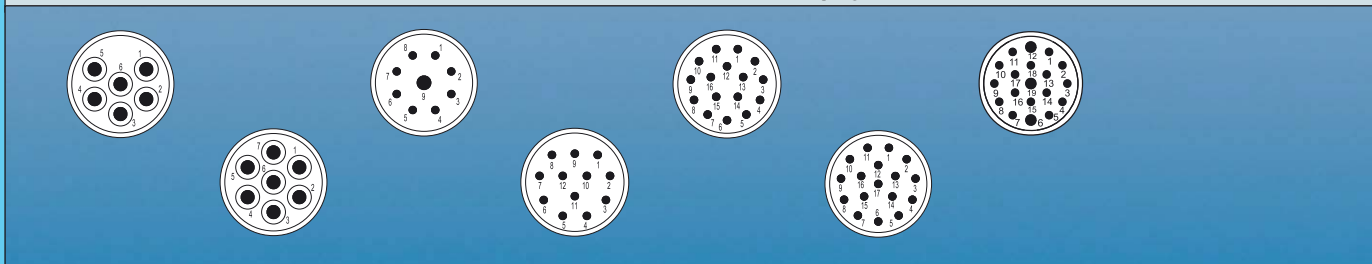
Housings

page 66



Inserts

page 74



Accessories

page 82



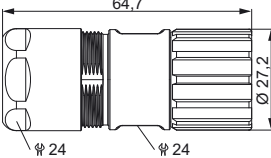
M 23 Signal Connectors

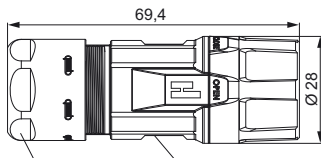
Mechanical Data	Materials and Technical Data
Housing	Copper-Zinc alloy Die Cast
Housing surface	Nickel plated other surface upon request
Inserts (for contacts)	Thermoplastic Polyamid PA 6 (Nylon 6/6), PBT Fire protection class V-0
Contacts	Brass Alloy
Contact surface at point of contact	Nickel and gold plated (0,25µm Au)
Minimum mating cycles	> 1000
Seals / O-Rings	Buna-N standard optional Viton® (Viton is a registered trademark of DuPont)
Temperature range	-40° C – 125° C (-40 °F – 257 °F)
Type of contacts	Crimp, solder, dip-solder (PCB)
Protection	IP 67 / IP 69K per EN 60 529 (connected), NEMA 4x
Cable diameter range	3 – 17 mm (.12 – .67")

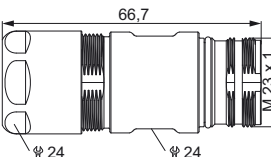
Electrical Data							
Number of positions	6	7	9 (8 + 1)	12	16	17	19 (16 + 3)
Number of contacts	6	7	8 1	12	16	17	16 3
Contact-Ø [mm]	2	2	1 2	1	1	1	1 1,5
Nominal current ¹⁾ [A]	20	20	8 20	8	8	8	8 10
Nominal voltage ²⁾ [V~] Degree of Protection 3 ³⁾	300	300	200	200	160	160	100
Test voltage (Breakdown voltage) ⁴⁾ [V~]	2500	2500	2500	2500	1500	1500	1500
Insulation resistance [MΩ]	> 10 ¹⁰	> 10 ¹⁰	> 10 ¹⁰	> 10 ¹⁰	> 10 ⁶	> 10 ⁶	> 10 ⁶
Max. contact resistance [mΩ]	3	3	3	3	3	3	3

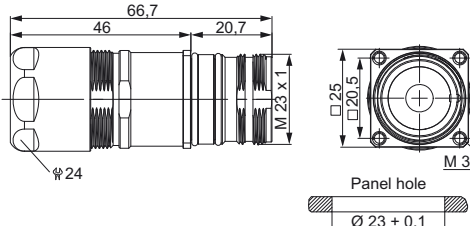
¹⁾, ²⁾, ³⁾, ⁴⁾ See Technical Informations page 14

Signal Connectors M 23 / Housing

Straight Connector, Female Thread	Cable-Ø	Part Number
	3 – 7 mm (.12 – .28").....7.106.400.000	
	7 – 12 mm (.28 – .47").....7.106.500.000	
	11 – 17 mm (.44 – .67").....7.106.600.000	
	Contacts and inserts page 74 • Assembly instructions page 88	

Straight Connector, Female Thread TWILOCK / TWILOCK-S *		Cable-Ø	Part Number
		3 – 7 mm (.12 – .28").....	7.166.400.000
		7 – 12 mm (.24 – .47").....	7.166.500.000
		11 – 17 mm (.43 – .67").....	7.166.600.000
		* Compatible to Speedtec	
		3 – 7 mm (.12 – .28").....	7.166.400.00S
		7 – 12 mm (.24 – .47").....	7.166.500.00S
		11 – 17 mm (.43 – .67").....	7.166.600.00S
Contacts and inserts page 74 • Assembly instructions page 88			

Straight Connector, Male Thread	Cable-Ø	Part Number
	3 – 7 mm (.12 – .28").....7.206.400.000	
	7 – 12 mm (.28 – .47").....7.206.500.000	
	11 – 17 mm (.44 – .67").....7.206.600.000	
	Contacts and inserts page 74 • Assembly instructions page 88	

Panel Connector, Male Thread, with Strain Relief	Cable-Ø	Part Number
	4 threads M 3, rear mounting	
	3 – 7 mm (.12 – .28").....7.476.400.000	
	7 – 12 mm (.28 – .47").....7.476.500.000	
	11 – 17 mm (.44 – .67").....7.476.600.000	
	Optional: Flat gasket	
	Contacts and inserts page 74 • Assembly instructions page 88	

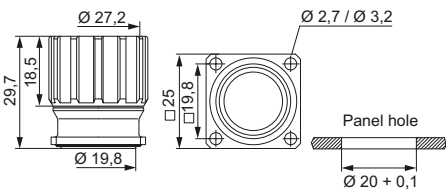
Cable-Ø	Part Number	Right Angle Connector, EMC, rotating
7 – 12 mm (.28 – .47").....	7.306.500.000	
11 – 17 mm (.43 – .67").....	7.306.600.000	

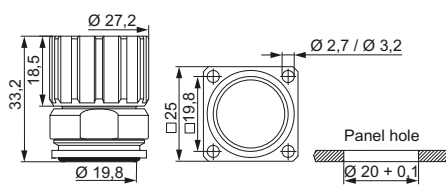
Contacts and inserts page 74 • Assembly instructions page 90

Signal Connectors M 23 / Housing

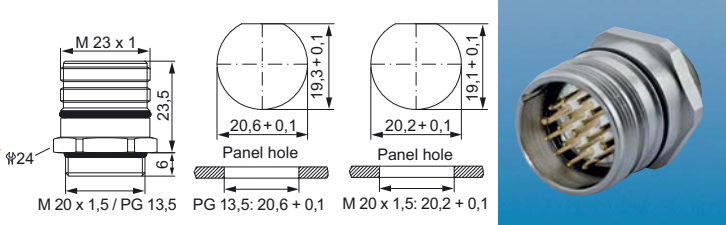
Panel Connector, Male Thread, Front Mounting	Type	Part Number
	4 holes Ø 3,2 mm (.13")	7.400.000.000
	4 threads M 3	7.402.000.000
	4 holes Ø 2,7 mm (.11")	7.404.000.000
	4 threads M 2,5	7.406.000.000
	Optional: Flat gasket	
Contacts and inserts page 74 • Assembly instructions page 91 / 92		

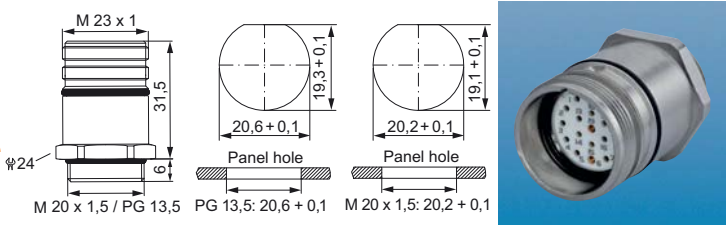
Panel Connector, Male Thread, Front Mounting	Type	Part Number
	With anti-vibration O-Ring	
	4 holes Ø 3,2 mm (.13")	7.410.000.000
	4 threads M 3	7.412.000.000
	4 holes Ø 2,7 mm (.11")	7.414.000.000
	4 threads M 2,5	7.416.000.000
	Optional: Flat gasket	
Contacts and inserts page 74 • Assembly instructions page 91 / 92		

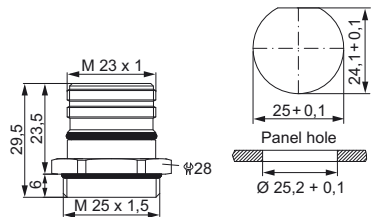
Panel Connector, Female Thread, with knurled Nut	Type	Part Number
 	Without coding option	
	4 holes Ø 3,2 mm (.13")	7.440.000.000
	4 holes Ø 2,7 mm (.11")	7.444.000.000
	Optional: Flat gasket	
	Contacts and inserts page 74 • Assembly instructions page 91 / 92	

Panel Connector, Female Thread, with knurled Nut	Type	Part Number
 	With coding option (8 x 45°)	
	4 holes Ø 3,2 mm (.13")	7.448.000.000
	4 holes Ø 2,7 mm (.11")	7.449.000.000
	Optional: Flat gasket	
	Contacts and inserts page 74 • Assembly instructions page 91 / 92	

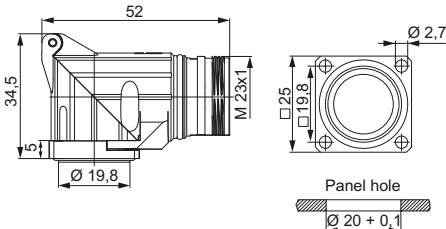
Signal Connectors M 23/ Housing

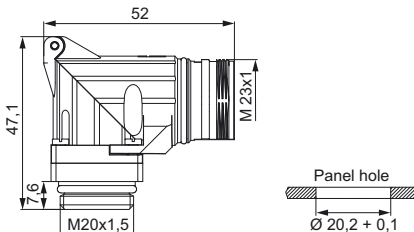
Type	Part Number	Panel Connector, Male Thread, Single Hole Mounted	
Front mounting for male inserts			
Thread M 20 x 1,5	7.420.000.000		
Thread PG 13,5	7.422.000.000		
Optional:			
Flat gasket,			
jam nut M 20 x 1,5 / PG 13,5			
Contacts and inserts page 74 • Assembly instructions page 91			
FOR MALE INSERTS ONLY			

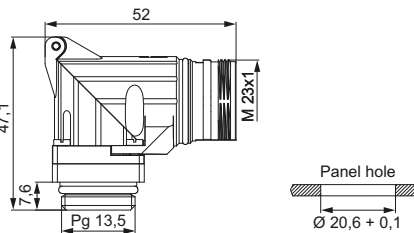
Type	Part Number	Panel Connector, Male Thread, Single Hole Mounted	
Front mounting for female inserts			
Thread M 20 x1,5	7.421.000.000		
Thread PG 13,5	7.423.000.000		
Optional:			
Flat gasket,			
jam nut M 20 x 1,5 / PG 13,5			
Contacts and inserts page 74 • Assembly instructions page 92			
FOR FEMALE INSERTS ONLY			

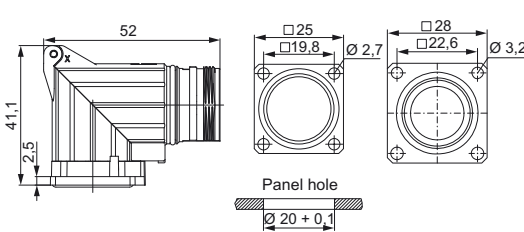
Type	Part Number	Panel Connector, Male Thread, Single Hole Mounted	
For insert with pins / sockets Thread M 25 x 1,57.425.000.000			
Optional: Flat gasket, jam nut M 25 x 1,5			
			
Contacts and inserts page 74 • Assembly instructions page 91 / 92			

Signal Connectors M 23 / Housing

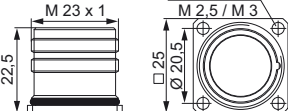
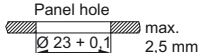
Right Angle Panel Connector, Male Thread	Type	Part Number
 	4 holes 2,7 mm (.11")7.435.000.000 Optional: Flat gasket Easy fixation with M2,5 screws Contacts and inserts page 74 • Assembly instructions page 93	

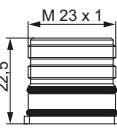
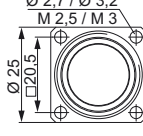
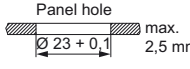
Right Angle Panel Connector, Male Thread, rotating	Type	Part Number
 	335° rotating, hole mounted Thread M20 x 1,57.431.000.000 Contacts and inserts page 74 • Assembly instructions page 93	

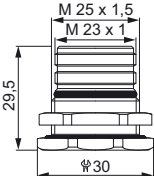
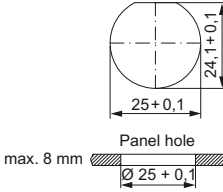
Right Angle Panel Connector, Male Thread, rotating	Type	Part Number
 	335° rotating, hole mounted Thread PG 13,57.432.000.000 Contacts and inserts page 74 • Assembly instructions page 93	

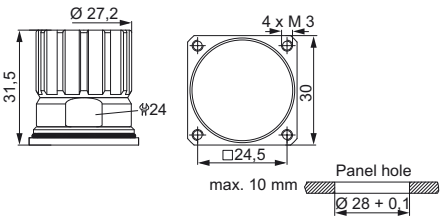
Right Angle Panel Connector, Male Thread, rotating	Type	Part Number
 	300° rotating, 1,5 mm locking screw at flange 4 x holes Ø 2,7 mm (.11") ..7.433.000.000 Flange 25 x 25 mm 4 x holes Ø 3,2 mm7.433.100.000 Flange 28 x 28 mm Contacts and inserts page 74 • Assembly instructions page 93	

Signal Connectors M 23 / Housing

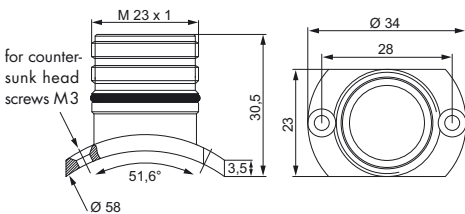
Type	Part Number	Panel Connector, Male Thread, Rear Mounting		
4 holes Ø 3,2 mm (.13")	7.450.000.000			
4 threads M3	7.452.000.000			
4 holes Ø 2,7 mm (.11")	7.454.000.000			
4 threads M2,5	7.456.000.000			
Optional: Flat gasket				
Contacts and inserts page 74 • Assembly instructions page 91 / 92				

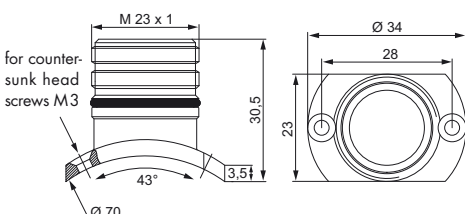
Type	Part Number	Panel Connector, Male Thread, Rear Mounting		
With anti-vibration O-Ring		  		
4 holes Ø 3,2 mm (.13")	7.460.000.000			
4 threads M3	7.462.000.000			
4 holes Ø 2,7 mm (.11")	7.464.000.000			
4 threads M2,5	7.466.000.000			
Optional: Flat gasket				
Contacts and inserts page 74 • Assembly instructions page 91 / 92				

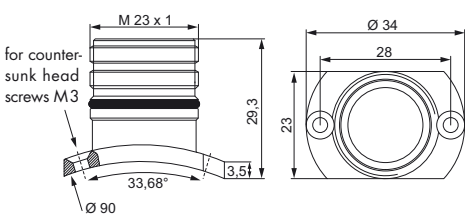
Type	Part Number	Panel Connector, Male Thread, Single Hole Mounted	
Rear mounting			
Thread M 25 x 1,5	7.458.000.000		
Including jam nut M 25 x 1,5			
			
Contacts and inserts page 74 • Assembly instructions page 91 / 92			

Type	Part Number	Panel Connector, Female Thread, Rear Mounting	
With knurled nut, rear mounting			
4 threads M3	7.459.000.000		
Contacts and inserts page 74 • Assembly instructions page 90			

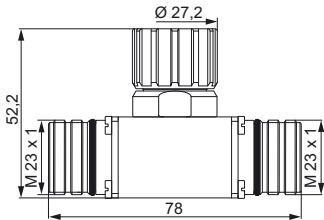
Signal Connectors M 23 / Housing

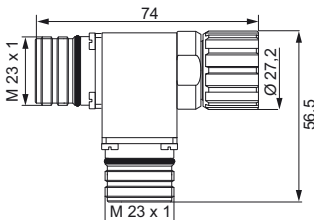
Panel Connector with Radius Flange		Type	Part Number
		With anti-vibration O-Ring and flat body gasket Ø 58 mm (2.28")7.490.000.000	
		Contacts and inserts page 74 • Assembly instructions page 91 / 92	

Panel Connector with Radius Flange		Type	Part Number
		With anti-vibration O-Ring and flat body gasket Ø 70 mm (2.76")7.491.000.000	
		Contacts and inserts page 74 • Assembly instructions page 91 / 92	

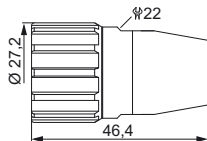
Panel Connector with Radius Flange		Type	Part Number
		With anti-vibration O-Ring and flat body gasket Ø 90 mm (3.54")7.492.000.000	
		Contacts and inserts page 74 • Assembly instructions page 91 / 92	

Signal Connectors M 23 / Housing

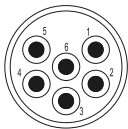
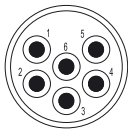
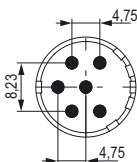
Type	Part Number	Signal Distribution
T 01	7.T01	
Contacts and inserts page 74 		

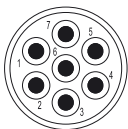
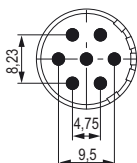
Type	Part Number	Signal Distribution
T 02	7.T02	
Contacts and inserts page 74 		

		Signal Distribution
In case of so called Flying Connections it is often required to distribute, cross or combine signals. Depending on the requirements of the application, the connections can be supplied either as male or female connector, or they can be configured with strain relief fittings. There are many possible combinations, including the internal wiring, independent of their style, as T-, Y-, H-, or other special configurations.		

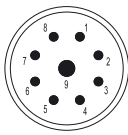
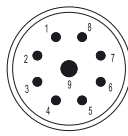
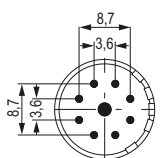
Type	Part Number	Bus End Connector
Closed type	7.105.000.000	
Used to cap an open male connector in bus-systems 		
Contacts and inserts page 74		

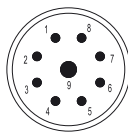
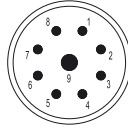
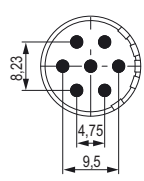
Signal Connectors M 23 / Inserts / Pinouts

Inserts 6-pole	Type	Part Number	Part Number
 Insert pin mating view (Part E)	Pinout clockwise	Pins	Sockets
	Insert with solder contacts	7.001.906.103	7.001.906.104
	Insert without contacts	7.003.906.101	7.003.906.102
 Insert socket mating view (Part P)	Insert with dip solder contacts Length 3,5 mm	7.001.906.107	
	Insert with dip solder contacts Length 10 mm	7.001.906.127	7.001.906.108
	Insert with dip solder contacts Length 17 mm	7.001.906.137	7.001.906.118
			
Contacts page 80 • Coding possibilities N, S, H, X and Y (see page 79)			

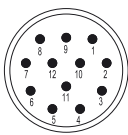
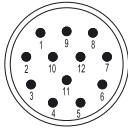
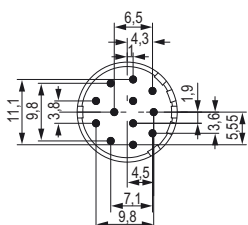
Inserts 7-pole	Type	Part Number	Part Number
 Insert pin mating view (Part E)	Pinout clockwise	Pins	Sockets
	Insert with solder contacts	7.001.907.103	7.001.907.104
	Insert without contacts	7.003.907.101	7.003.907.102
 Insert socket mating view (Part P)	Insert with dip solder contacts Length 3,5 mm	7.001.907.107	
	Insert with dip solder contacts Length 10 mm	7.001.907.127	7.001.907.108
	Insert with dip solder contacts Length 17 mm	7.001.907.137	7.001.907.118
			
Contacts page 80 • Coding possibilities N, S, H, X and Y (see page 79)			

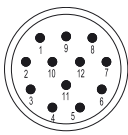
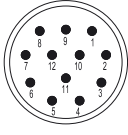
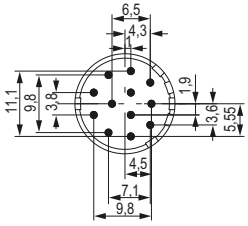
Signal Connectors M 23 / Inserts / Pinouts

Type	Part Number	Part Number	Inserts 9-pole (8 + 1)
Pinout clockwise	Pins	Sockets	
Insert with solder contacts	7.001.981.103	7.001.981.104	 Insert pin mating view (Part E)
Insert without contacts	7.003.981.101	7.003.981.102	
Insert with dip solder contacts			 Insert socket mating view (Part P)
Length 3,5 mm	7.001.981.107		
Insert with dip solder contacts			
Length 10 mm	7.001.981.127	7.001.981.108	
Insert with dip solder contacts			
Length 17 mm	7.001.981.137	7.001.981.118	
The correct dimension of a connector with dip solder contacts depends on the particular type of housing.			
Contacts page 80 • Coding possibilities N, S, H, X and Y (see page 79)			

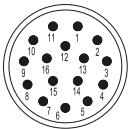
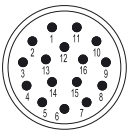
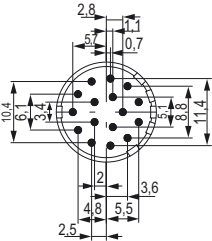
Type	Part Number	Part Number	Inserts 9-pole (8 + 1)
Pinout counter-clockwise	Pins	Sockets	
Insert with solder contacts	7.002.981.103	7.002.981.104	 Insert pin mating view (Part P)
Insert without contacts	7.004.981.101	7.004.981.102	
Insert with dip solder contacts			 Insert socket mating view (Part E)
Length 3,5 mm	7.002.981.107		
Insert with dip solder contacts			
Length 10 mm	7.002.981.127	7.002.981.108	
Insert with dip solder contacts			
Length 17 mm	7.002.981.137	7.002.981.118	
The correct dimension of a connector with dip solder contacts depends on the particular type of housing.			
Contacts page 80 • Coding possibilities N, S, H, X and Y (see page 79)			

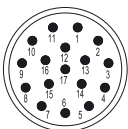
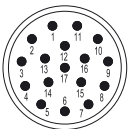
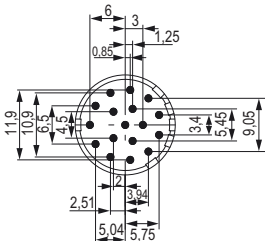
Signal Connectors M 23 / Inserts / Pinouts

Inserts 12-pole	Type	Part Number	Part Number
 Insert pin mating view (Part E)  Insert socket mating view (Part P) 	Pinout clockwise	Pins	Sockets
	Insert with solder contacts	7.001.912.103	7.001.912.104
	Insert with solder contacts +PE (Pos.9)	7.001.912.113	7.001.912.114
	Insert without contacts	7.003.912.101	7.003.912.102
	Insert without contacts +PE (Pos.9)	7.003.912.111	7.003.912.112
	Insert with dip solder contacts Length 3,5 mm	7.001.912.107	
	Insert with dip solder contacts Length 10 mm	7.001.912.127	7.001.912.108
	Insert with dip solder contacts Length 17 mm	7.001.912.137	7.001.912.118
	The correct dimension of a connector with dip solder contacts depends on the particular type of housing.		
	Contacts page 80 • Coding possibilities N, S, H, X and Y (see page 79)		

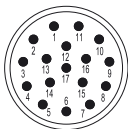
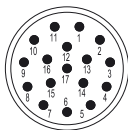
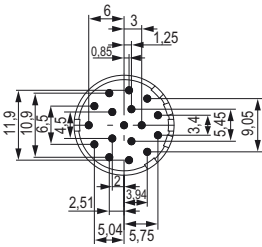
Inserts 12-pole	Type	Part Number	Part Number
 Insert pin mating view (Part P)  Insert socket mating view (Part E) 	Pinout counter-clockwise	Pins	Sockets
	Insert with solder contacts	7.002.912.103	7.002.912.104
	Insert with solder contacts +PE (Pos.9)	7.002.912.113	7.002.912.114
	Insert without contacts	7.004.912.101	7.004.912.102
	Insert without contacts +PE (Pos.9)	7.004.912.111	7.004.912.112
	Insert with dip solder contacts Length 3,5 mm	7.002.912.107	
	Insert with dip solder contacts Length 10 mm	7.002.912.127	7.002.912.108
	Insert with dip solder contacts Length 17 mm	7.002.912.137	7.002.912.118
	The correct dimension of a connector with dip solder contacts depends on the particular type of housing.		
	Contacts page 80 • Coding possibilities N, S, H, X and Y (see page 79)		

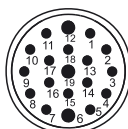
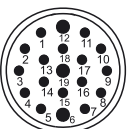
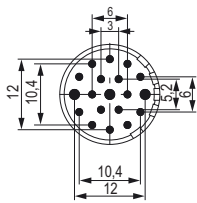
Signal Connectors M 23 / Inserts / Pinouts

Type	Part Number	Part Number	Inserts 16-pole
Pinout clockwise	Pins	Sockets	
Insert with solder contacts	7.001.916.103	7.001.916.104	 Insert pin mating view (Part E)
Insert without contacts	7.003.916.101	7.003.916.102	
Insert with dip solder contacts			 Insert socket mating view (Part P)
Length 3,5 mm	7.001.916.107		
Insert with dip solder contacts			
Length 10 mm	7.001.916.127	7.001.916.108	
Insert with dip solder contacts			
Length 17 mm	7.001.916.137	7.001.916.118	
The correct dimension of a connector with dip solder contacts depends on the particular type of housing.			
Contacts page 80 • Coding possibilities N, S, H, X and Y (see page 79)			

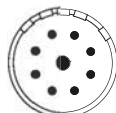
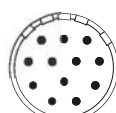
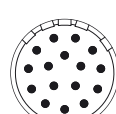
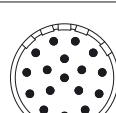
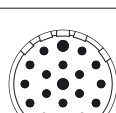
Type	Part Number	Part Number	Inserts 17-pole
Pinout clockwise	Pins	Sockets	
Insert with solder contacts	7.001.917.103	7.001.917.104	 Insert pin mating view (Part E)
Insert without contacts	7.003.917.101	7.003.917.102	
Insert with dip solder contacts			 Insert socket mating view (Part P)
Length 3,5 mm	7.001.917.107		
Insert with dip solder contacts			
Length 10 mm	7.001.917.127	7.001.917.108	
Insert with dip solder contacts			
Length 17 mm	7.001.917.137	7.001.917.118	
The correct dimension of a connector with dip solder contacts depends on the particular type of housing.			
Contacts page 80 • Coding possibilities N, S, H, X and Y (see page 79)			

Signal Connectors M 23 / Inserts / Pinouts

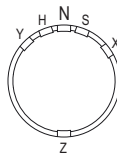
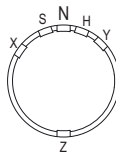
Inserts 17-pole	Type	Part Number	Part Number
 Insert pin mating view (Part P)  Insert socket mating view (Part E) 	Pinout counter-clockwise	Pins	Sockets
	Insert with solder contacts	7.002.917.103	7.002.917.104
	Insert without contacts	7.004.917.101	7.004.917.102
	Insert with dip solder contacts Length 3,5 mm	7.002.917.107	
	Insert with dip solder contacts Length 10 mm	7.002.917.127	7.002.917.108
	Insert with dip solder contacts Length 17 mm	7.002.917.137	7.002.917.118
The correct dimension of a connector with dip solder contacts depends on the particular type of housing. Contacts page 80 • Coding possibilities N, S, H, X and Y (see page 79)			

Inserts 19-pole	Type	Part Number	Part Number
 Insert pin mating view (Part E)  Insert socket mating view (Part P) 	Pinout clockwise	Pins	Sockets
	Insert with solder contacts	7.001.919.103	7.001.919.104
	Insert with solder contacts +PE (Pos. 12)	7.001.919.113	7.001.919.114
	Insert with solder contacts + PE (Pos. 12) 1,5 mm elongated	7.001.919.123	
	Insert without contacts	7.003.919.101	7.003.919.102
	Insert without contacts +PE (Pos. 12)	7.003.919.111	7.003.919.112
	Insert with dip solder contacts Length 3,5 mm	7.001.919.107	
	Insert with dip solder contacts Length 10 mm	7.001.919.127	7.001.919.108
	Insert with dip solder contacts Length 17 mm	7.001.919.137	7.001.919.118
The correct dimension of a connector with dip solder contacts depends on the particular type of housing. Contacts page 80 • Coding possibilities N, S, H, X and Y (see page 79)			

Signal Connectors M 23 / Required Contacts

Number of Poles	Required Contacts	Contact Arrangement
6	6 x 2 mm	
7	7 x 2 mm	
9 (8 + 1)	8 x 1 mm 1 x 2 mm	
12	12 x 1 mm	
16	16 x 1 mm	
17	17 x 1 mm	
19	16 x 1 mm 3 x 1,5 mm	

Crimp contacts page 80
For the M23 crimp insert with 1 mm contacts can be used stamped crimp contact.

Number of Poles	Coding Possibilities	Coding	
6-pole	N, S, H, X, Y and Z	 Female Inserts mating view	 Male Inserts mating view
7-pole	N, S, H, X and Y		
9-pole	N, S, H, X and Y		
12-pole	N, S, H, X, Y and Z		
16-pole	N, S, H, X, Y and Z		
17-pole	N, S, H, X, Y and Z		
19-pole	N, S, H, X and Y		

As standard, coding groove N is opened. To use other codings, please remove the coding barrier.

Signal Connectors M 23 / Contacts

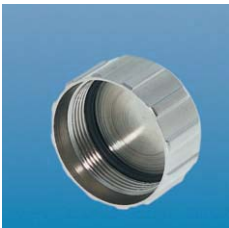
Contacts	Type	Crimp Range	Part Number
	Crimp pin 1 mm, machined	0,08 – 0,56 mm ² (AWG 28 – 20)	..7.010.901.031
	Crimp pin 1 mm, machined	0,14 – 1 mm ² (AWG 26 – 17)	7.010.901.001
	Crimppin 1 mm, machined	0,75 – 1,5 mm ² (AWG 17 – 16)	..7.010.901.021
	Crimp socket 1 mm, machined	...0,08 – 0,56 mm ² (AWG 28 – 20)	..7.010.901.012
	Crimp socket 1 mm, machined	...0,34 – 1 mm ² (AWG 22 – 17)	7.010.901.002
	Crimp socket 1 mm, machined	...0,75 – 1,5 mm ² (AWG 17 – 16)	..7.010.901.022
	Crimp pin 1 mm, stamped	0,14 – 0,56 mm ² (AWG 26 – 20)	...upon request
	Crimp socket 1 mm, stamped	0,14 – 0,56 mm ² (AWG 26 – 20)	...upon request
	Crimp pin 1,5 mm, machined	0,14 – 1 mm ² (AWG 26 – 17)	7.010.901.501

Signal Connectors M 23 / Contacts

Type	Crimp Range	Part Number	Contacts
Crimp socket 1,5 mm, machined...0,14 – 0,56 mm ² (AWG 26 – 20) ..7.010.901.512			
Crimp socket 1,5 mm, machined...0,56 – 1 mm ² (AWG 20 – 17)7.010.901.502			
Crimp pin 2 mm, machined0,75 – 2,5 mm ² (AWG 18 – 14) ..7.010.902.001			
Crimp socket 2 mm, machined ...0,75 – 2,5 mm ² (AWG 18 – 14) ..7.010.902.002			

Crimp Tool Settings see page 86

Signal Connector / Accessories

Accessories	Type	Part Number
	Plastic protective cap for connectors with male thread for connectors with female thread.....	7.000.900.101 7.000.900.102
	Brass protective cap for connectors with female thread.....	7.010.900.103
	Brass protective cap for connectors with male thread	7.010.900.102
	Brass protective cap with chain for connectors with female thread	Length 70 mm7.010.9S0.703 Length 100 mm7.010.9S1.003
	Brass protective cap with chain for connectors with male thread	Length 70 mm7.010.9S0.702 Length 100 mm7.010.9S1.002
	Assembly tool	7.010.900.101

Signal Connector / Accessories

Type	Part Number	Accessories
Crimp tool for manual crimping of machined crimp contacts for signal connectors	7.000.900.904	
Operating instructions on page 84 - 87, 94		
Adaptor flange for Straight Connectors	7.010.900.128	
Adapter for Conduit Fittings	Snapflex 16.....7.010.900.204 DN 127.010.900.205 Snapflex 20.....7.010.900.206 DN 147.010.900.207 Snapflex 25.....7.010.900.208 DN 177.010.900.209	

Type	Part Number	Locator
Locator for Crimp Tool DMC M22520 with positioner	7.000.9DM.C03	
For HUMMEL Contact: 7.010.901.001, 7.010.901.501, 7.010.902.001		
Locator for Crimp Tool DMC M22520 with positioner	7.000.9DM.C04	
For HUMMEL Contact: 7.010.901.012, 7.010.901.002, 7.010.901.512, 7.010.901.502, 7.010.902.002		

Crimp Tool for Signal Connectors M 23 / M 16

Crimp Tool	Type	Part Number
	Crimp tool.....	7.000.900.904 / 7.000.900.907
	Application The four indent crimp tool 7.000.900.904 / 7.000.900.907 has been developed for optimal crimping of machined contacts with diameters from 0.08 to 2.5 mm² (28 through 14 AWG). How to Crimp The reference table indicates the correct locator position to be selected and the crimp depth to be adjusted for the contact to be crimped. The contact is then inserted through the access hole of the tool on the opposite side of the locator. The contact is held in place by closing the handles to the first lock-in position thus preventing the contact from falling out of the tool and facilitating insertion of the wire into the contact. The precision ratchet assures consistently accurate crimping every time by forcing the tool to be closed all the way completing the crimping cycle before the tool can be opened again. Exchange of the Locator The locator can be exchanged by removing the socket head cap screw with a socket wrench. It can then be disassembled from the hex head screw by turning it counter-clockwise.	
	Scale indicating 0.2 mm increments	Crimp jaws
	Physical stop	Adjusting screw with 0.01 mm increments

Crimp Tool for Signal Connectors M 23 / M 16

Crimp Tool

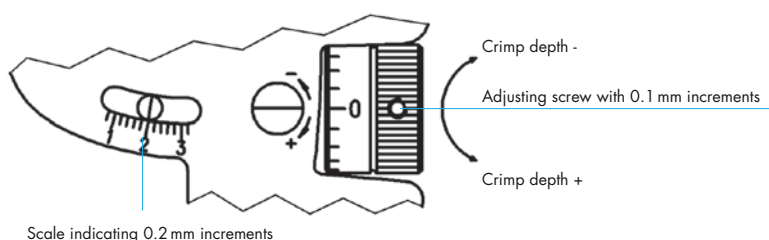
Adjustment of Crimp Depth

Crimp depth can be adjusted as follows:

Turn the adjusting screw clockwise for reducing the crimp depth and counter-clockwise for increasing the crimp depth.

Adjustment Increments:

- 1 space on the adjusting screw $\hat{=}$ adjustment by 0.01 mm
- 1 full rotation of adjusting screw $\hat{=}$ adjustment by 0.2 mm (indication on the screw as well as on the rough scale)
- 5 rotations of the adjusting screw $\hat{=}$ adjustment by 1 mm (indication on the scale)



Control of Crimp Depth

Crimp tool adjustment is done at the factory, but with frequent use, periodic calibration is recommended to insure accuracy. This is easily accomplished with a 1.0 mm $\varnothing$ wire gauge as follows.

A crimp depth of 1.0 mm is set by means of the adjusting screw (scale mark at „1“, screw mark at „0“ as shown in the fig. above) and the tool in the closed position. After insertion of the gauge, there must be just enough space for moving the gauge inside the entry hole. If the opening is too small or too large to exactly match the gauge, the deviation (+/-) can be checked by the precision setting of the screw. Please contact the factory in case the deviation exceeds the tolerances specified by the contract manufacturer.

Maintenance and Repair

Keep the tool clean and properly stored when not in service. All pivot points need to be oiled regularly and the spring clips securing the bolts have to always be in place. For repair please send the tool back to the factory.



Crimp Tool for Signal Connectors M 23

Crimp Tool Setting for HUMMEL Crimp Contacts (Crimp Tool 7.000.900.904)					
Part Number	Crimp Contact	Cross Section (mm ²)	AWG	Crimp Tool Setting mm	Locator Setting
7.010.901.001	Crimp pin 1 mm	0,14	AWG 26	0,70	1
		0,25	AWG 24	0,76	
		0,34	AWG 22	0,82	
		0,50	AWG 20	0,90	
		0,75	AWG 18	1,00	
		1,00	AWG 17	1,10	
7.010.901.012	Crimp socket 1 mm (0,08 – 0,56 mm ²)	0,08	AWG 28	0,75	2
		0,14	AWG 26	0,78	
		0,25	AWG 24	0,82	
		0,34	AWG 22	0,86	
		0,56	AWG 20	0,90	
7.010.901.002	Crimp socket 1 mm (0,34 – 1 mm ²)	0,34	AWG 22	0,77	2
		0,56	AWG 20	0,82	
		0,75	AWG 18	0,88	
		1,00	AWG 17	0,95	
7.010.901.501	Crimp pin 1,5 mm	0,14	AWG 26	0,65	3
		0,25	AWG 24	0,68	
		0,34	AWG 22	0,72	
		0,56	AWG 20	0,81	
		0,75	AWG 18	0,95	
		1,00	AWG 17	1,07	
7.010.901.512	Crimp socket 1,5 mm (0,14 – 0,56 mm ²)	0,14	AWG 26	0,70	2
		0,25	AWG 24	0,73	
		0,34	AWG 22	0,77	
		0,56	AWG 20	0,85	
7.010.901.502	Crimp socket 1,5 mm (0,34 – 1 mm ²)	0,34	AWG 22	0,88	2
		0,56	AWG 20	0,95	
		0,75	AWG 18	1,05	
		1,0	AWG 17	1,13	
7.010.902.001	Crimp pin 2 mm	0,75	AWG 18	1,25	4
		1,0	AWG 17	1,35	
		1,5	AWG 16	1,45	
		2,5	AWG 14	1,60	
7.010.902.002	Crimp socket 2 mm	0,75	AWG 18	1,25	5
		1,0	AWG 17	1,35	
		1,5	AWG 16	1,45	
		2,5	AWG 14	1,60	

These values are only guidelines and actual conductor cross sections depend on manufacturer tolerances.

Assembly information see page 94

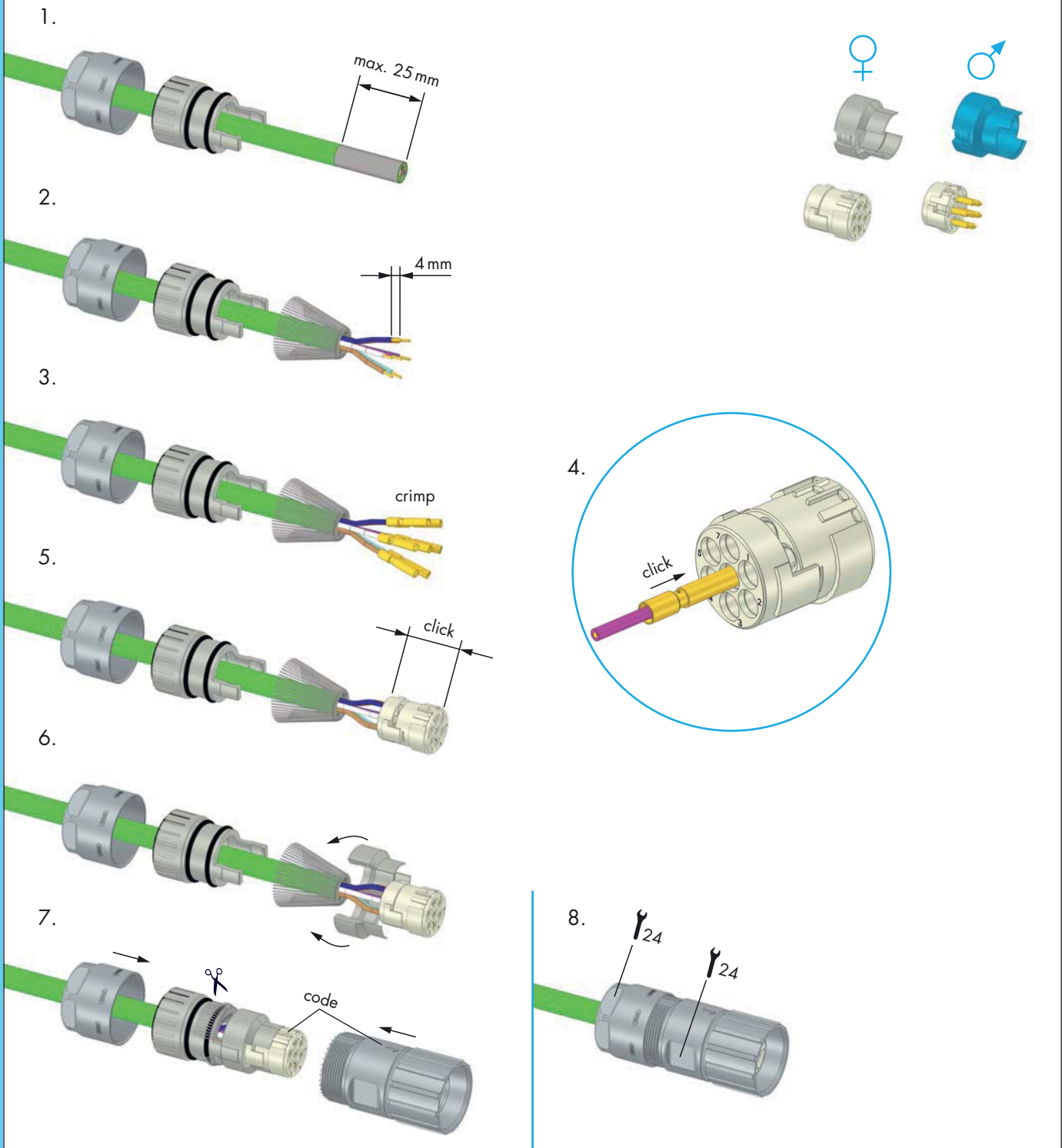
Crimp Tool for Signal Connectors M 23

Crimp Tool Setting for HUMMEL Crimp Contacts (Crimp Tool 7.000.900.904)

Part Number	Crimp Contact	Cross Section (mm ²)	AWG	Crimp Tool Setting mm	Locator Setting
7.010.901.031	Crimp pin 1 mm	0,08		0,72	1
		0,14		0,78	
		0,25		0,82	
		0,34		0,86	
		0,56		0,90	
7.010.901.021	Crimp pin 1 mm	0,75		0,80	1
		1,00		0,86	
		1,50		0,95	
7.010.901.022	Crimp socket 1 mm	0,75		0,80	2
		1,00		0,86	
		1,50		0,95	

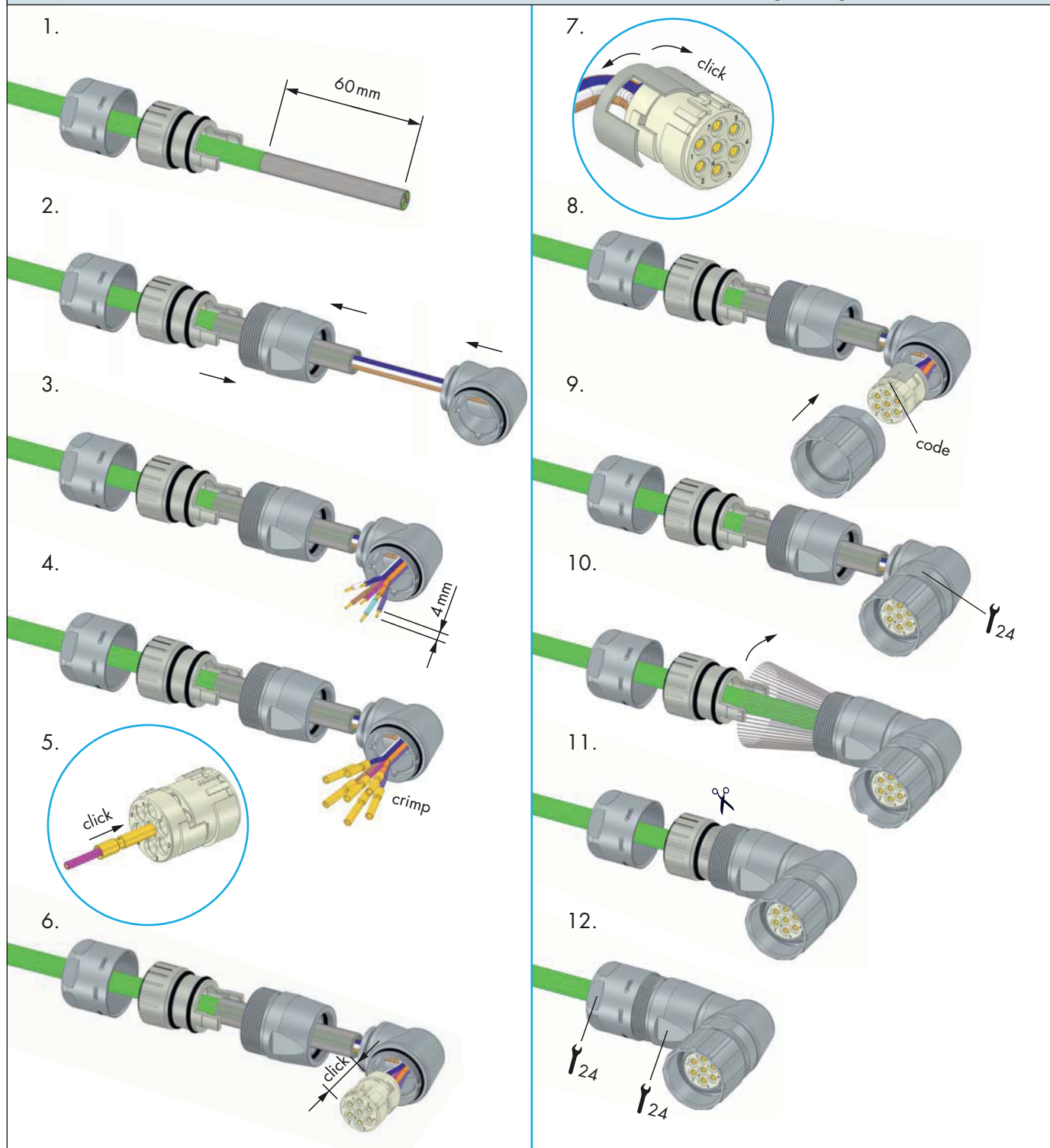
Signal Connectors M 23 / Assembly Instructions

Straight Connector, Male / Female Thread



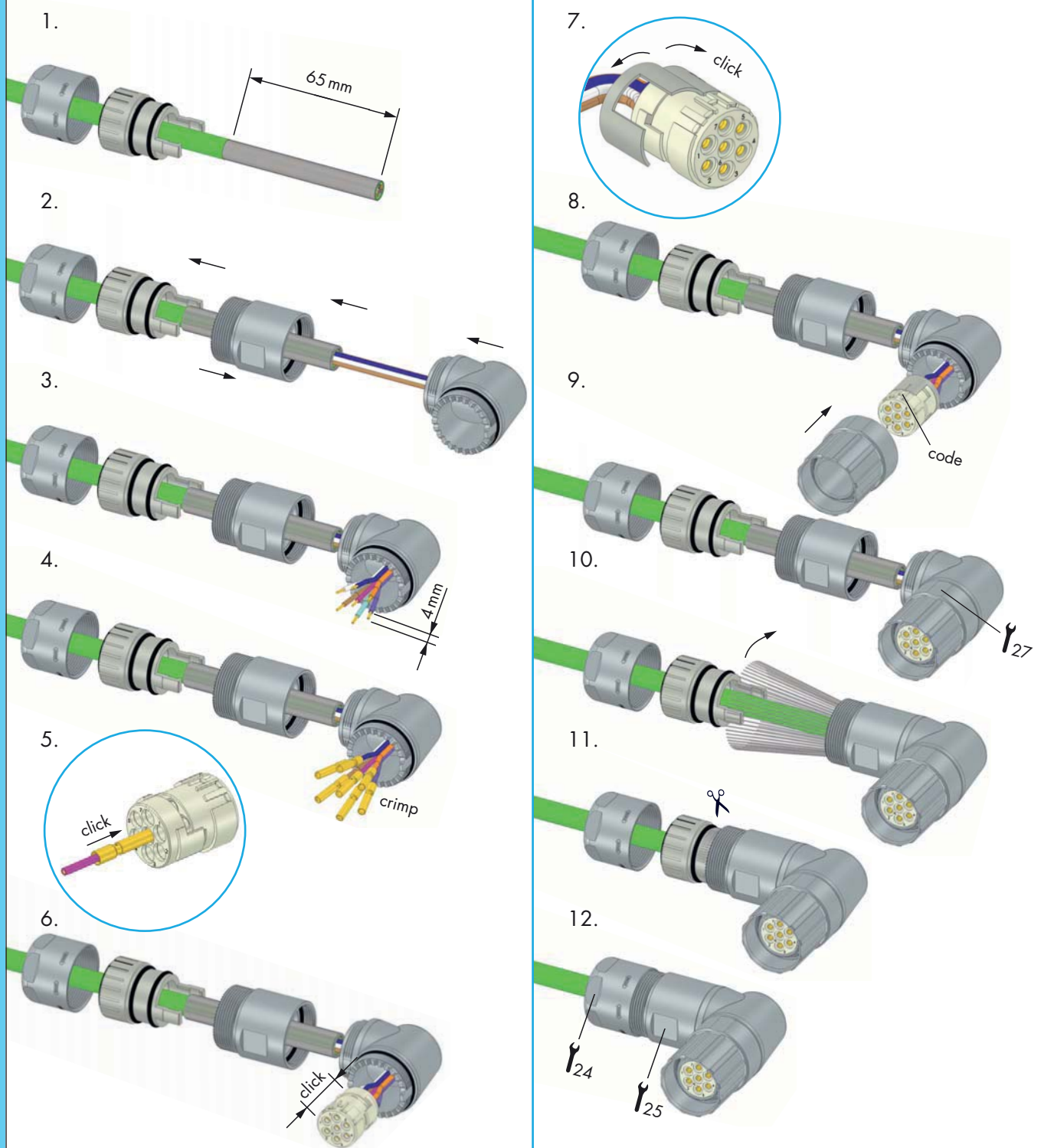
Signal Connectors M23 / Assembly Instructions

Right Angle Connectors, EMC



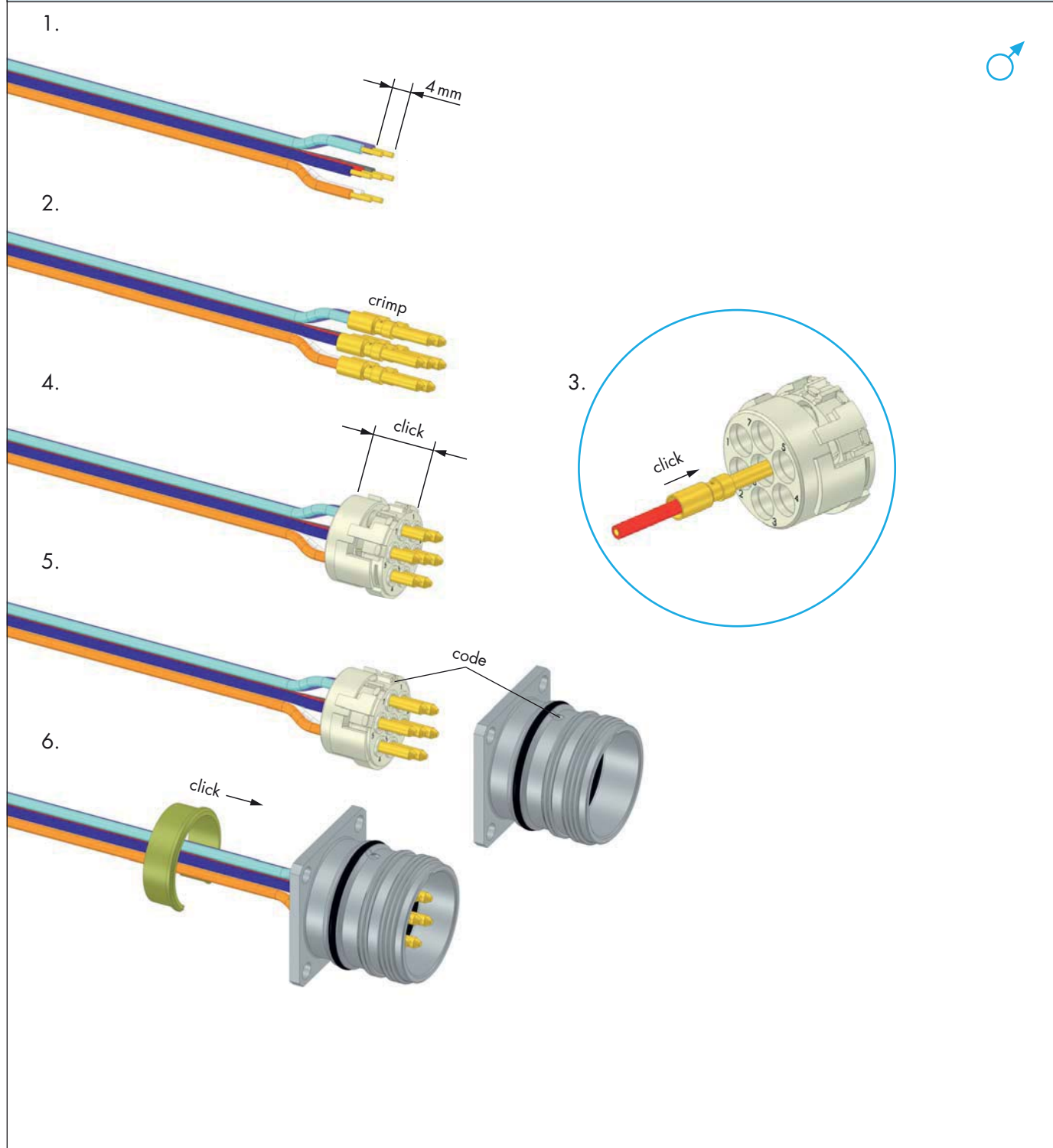
Signal Connectors M 23 / Assembly Instructions

Right Angle Connector, rotating, EMC



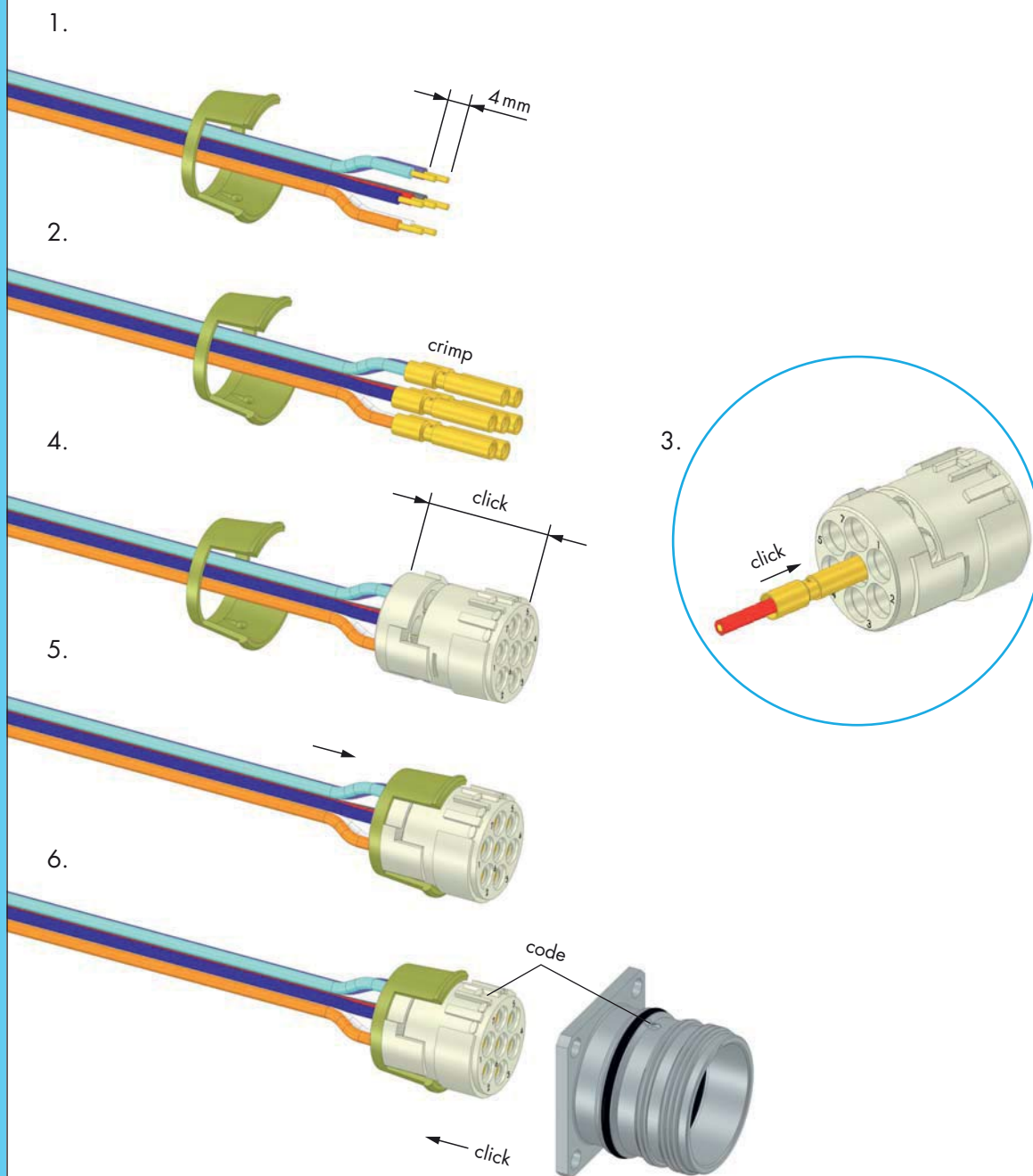
Signal Connectors M23 / Assembly Instructions

Panel Connectors, Male Inserts



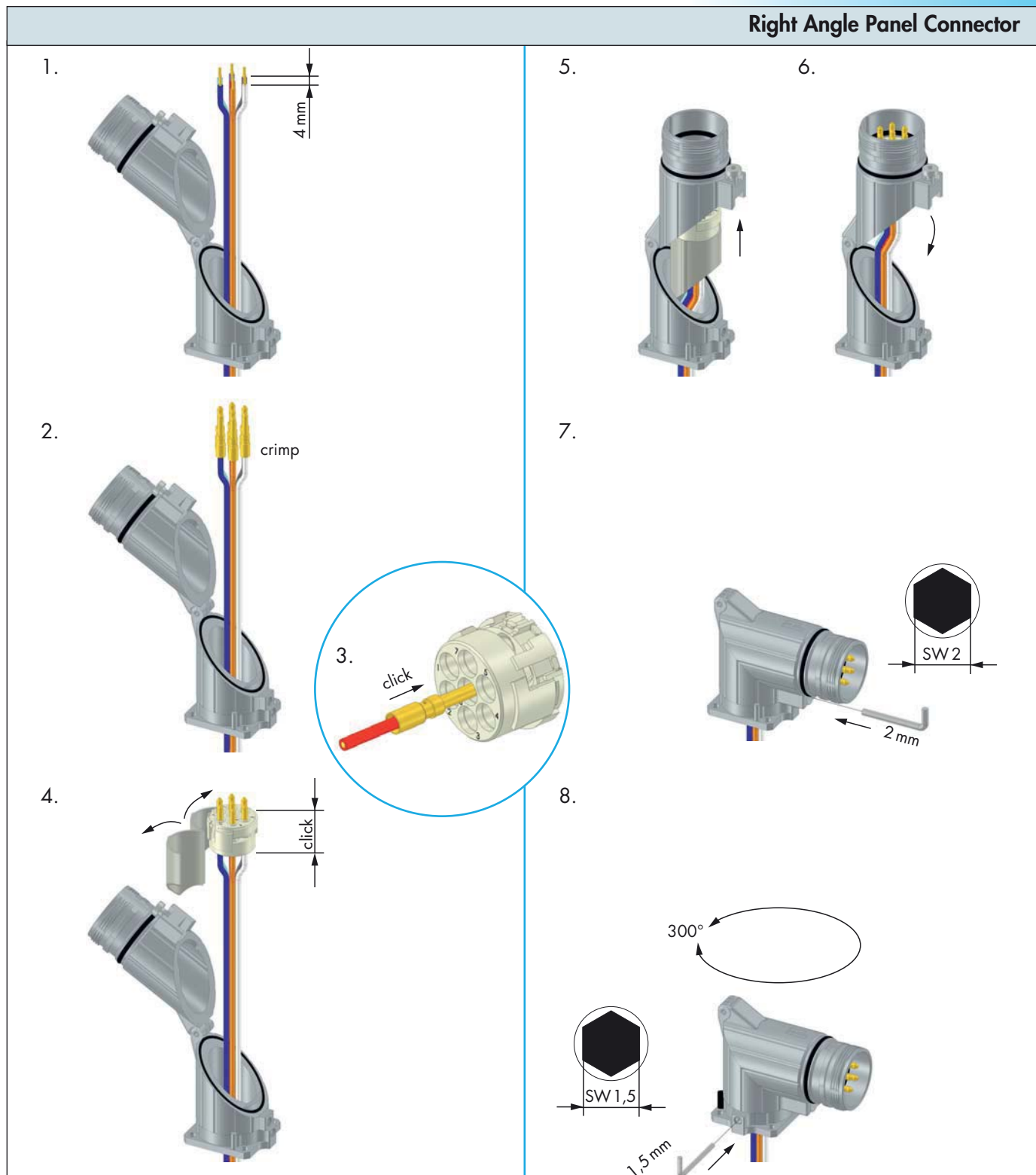
Signal Connectors M 23 / Assembly Instructions

Panel Connectors, Female Inserts



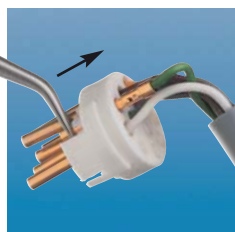
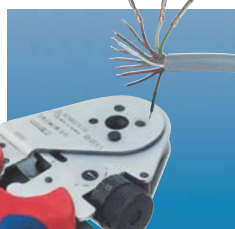
Signal Connectors M23 / Assembly Instructions

Right Angle Panel Connector



Crimping, Assembly and Disassembly of Contacts

Crimping, Assembly and Disassembly of Contacts



Crimping

- Remove conductor insulation 4 mm (.16") max.
- Select appropriate Crimp tool setting (see page 86)
- Insert Crimp contact into the positioner of the tool
- Insert stripped end of conductor into the crimp opening of the contact
- Squeeze handles of crimp tool together

Assembly

- Open crimping jaws and remove contact
- Pry open upper and lower insert approx. 3 mm (1/8") apart as shown
- Insert the contact and conductor assembly into the desired location
- Press upper and lower insert parts together

Disassembly

No special tools are needed to remove the crimp contacts from the insert.

- Remove upper part of insert
- With a pair of needle nose pliers, wiggle the contact and push it back through the lower part of insert
- Insert contacts into new location and push until it snaps in position
- Align the nose and groove of the upper and lower part of insert and press together

Shielding

- Assemble strain relief insert with insert
- Fold stranding of the shield back over the first O-Ring of the strain relief insert
- Cut back the overextending braid



The stranding of the shield is not allowed to touch the second O-Ring. Otherwise the assembly may not be proof.

Connectors M 27



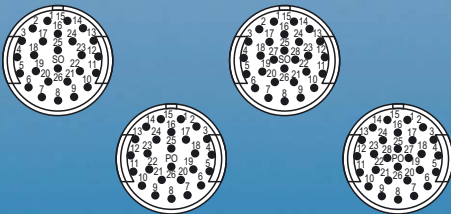
Housings

page 98



Inserts

page 99



Accessories

page 101



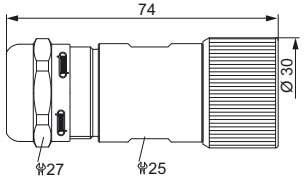
M 27 Signal Connectors

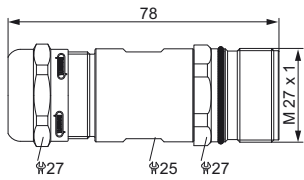
Mechanical Data	Materials and Technical Data
Housing	Copper-Zinc alloy Die Cast
Housing surface	Nickel plated other surface upon request
Inserts (for contacts)	Thermoplastic Polyamid PA 6 (Nylon 6/6), PBT Fire protection class V-0
Contacts	Brass Alloy
Contact surface at point of contact	Nickel and gold plated (0,25µm Au)
Minimum mating cycles	> 1000
Seals / O-Rings	Buna-N standard optional Viton® (Viton is a registered trademark of DuPont)
Temperature range	-40° C – 125° C (-40 °F – 257 °F)
Type of contacts	Crimp, solder, dip-solder (PCB)
Protection	IP 67 / IP 69 K per EN 60 529 (connected), NEMA 4x
Cable diameter range	7 – 17 mm (.28 – .67")

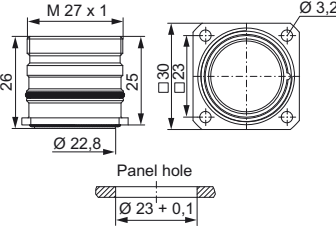
Electrical Data			
Number of positions		26	28
Number of contacts		26	28
Contact-Ø [mm]		1	1
Nominal current ¹⁾ [A]		8	8
Nominal voltage ²⁾ [V~]		150	150
Test voltage (Breakdown voltage) ³⁾ [V~]		1500	1500
Insulation resistance [MΩ]		> 10 ¹²	> 10 ¹²
Max. contact resistance [mΩ]		3	3
Degree of Protection ⁴⁾		3	3

¹⁾, ²⁾, ³⁾, ⁴⁾ See Technical Informations page 14

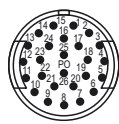
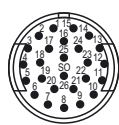
Signal Connectors M 27 / Housing

Straight Connector, Female Thread	Cable-Ø	Part Number
 	7 – 12 mm (.28 - .47")	7.110.500.000
	11 – 17 mm (.43 - .67")	7.110.600.000
Contacts and inserts page 99 • Assembly instructions page 103		

Straight Connector, Male Thread	Cable-Ø	Part Number
 	7 – 12 mm (.28 - .47")	7.210.500.000
	11 – 17 mm (.43 - .67")	7.210.600.000
Contacts and inserts page 99 • Assembly instructions page 103		

Panel Connector, Male Thread, front mounting	Type	Part Number
 	4 x holes 3,2 mm	7.410.700.000
	Contacts and inserts page 99 • Assembly instructions page 104	

Signal Connectors M 27 / Housing

Type	Part Number	Part Number	Inserts 26-pole
Pinout clockwise	Pins	Sockets	
Insert with solder contacts	7.001.926.103	7.001.926.104	
Insert without contacts.....	7.003.926.101	7.003.926.102	
Insert with dip solder contacts			
Length 10 mm	7.001.926.127		
The correct dimension of a connector with dip solder contacts depends on the particular type of housing.			
Contacts page 100			

Type	Part Number	Part Number	Inserts 28-pole
Pinout clockwise	Pins	Sockets	
Insert with solder contacts	7.001.928.103	7.001.928.104	
			Insert pin mating view
			
			Insert socket mating view

Contacts page 100

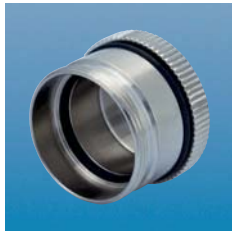
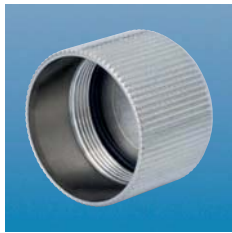
Signal Connectors M 27 / required contacts

Contact Arrangement	Number of Poles	Required Contacts
	26	26 x 1 mm
	28	28 x 1 mm

Contacts	Type	Crimp Range	Part Number
	Crimp pin 1 mm, machined	0,14 – 1 mm ² (AWG 26 – 17)	7.010.971.001
	Crimp socket 1 mm, machined ...	0,14 – 1 mm ² (AWG 26 – 17)	7.010.971.002

Crimp Tool Settings see page 102

Signal Connectors M27 / Accessories

Type	Part Number	Accessories
Plastic protective cap for connectors with male thread for connectors with female thread	7.000.980.167 7.000.980.168	
Brass protective cap for connectors with female thread	7.010.900.169	
Brass protective cap with chain for connectors with female threadLength 70 mm	7.010.9S0.707	
Brass protective cap for connectors with male thread	7.010.900.170	
Brass protective cap with chain for connectors with male threadLength 70 mm	7.010.9S0.708	
Crimp tool for manual crimping of machined crimp contacts. Works with contacts for power or signal M27.	7.000.900.901	
See page 117 / 118 for crimp tool instructions and page 102 proper setting		
Assembly tool	7.010.900.110	

Crimp Tool for Signal Connectors M 27

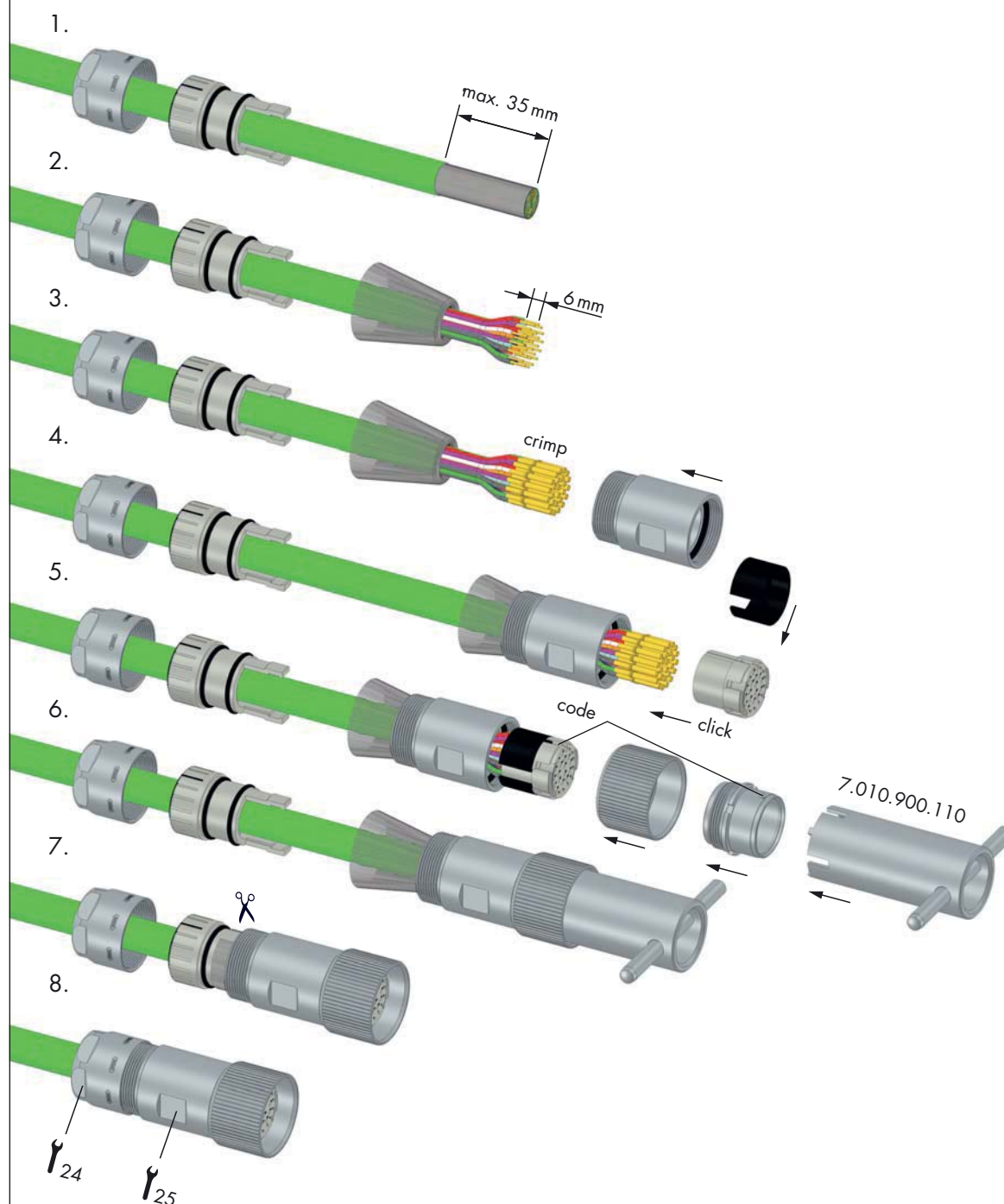
Crimp Tool Setting for HUMMEL Crimp Contacts (Crimp Tool 7.000.900.901)

Part Number	Crimp Contact	Cross Section mm ²	AWG	Crimp Tool Setting mm	Locator Setting
7.010.971.001	Crimp pin (signal) 1 mm	0,14	26	0,70	1
		0,25	24	0,80	1
		0,34	22	0,88	1
		0,50	20	0,95	1
		0,75	18	1	1
		1	17	1,03	1
7.010.971.002	Crimp socket (signal) 1 mm	0,14	26	0,70	4
		0,25	24	0,80	4
		0,34	22	0,88	4
		0,50	20	0,95	4
		0,75	18	1	4
		1	17	1,03	4

These values are only guidelines and actual conductor cross sections depend on manufacturer tolerances.

Signal Connectors M27 / Assembly Instructions

Straight Connector, Female Thread



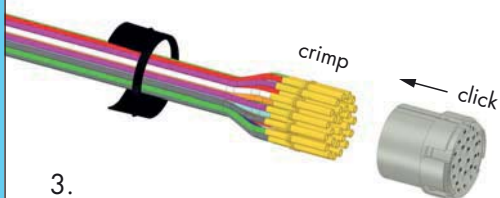
Signal Connectors M 27 / Assembly Instructions

Panel Connector

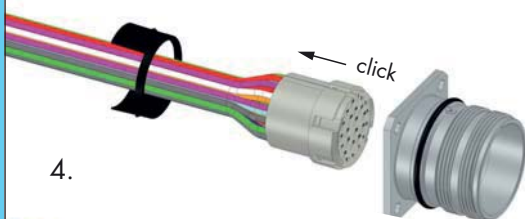
1.



2.



3.



4.



Power Connectors M 23



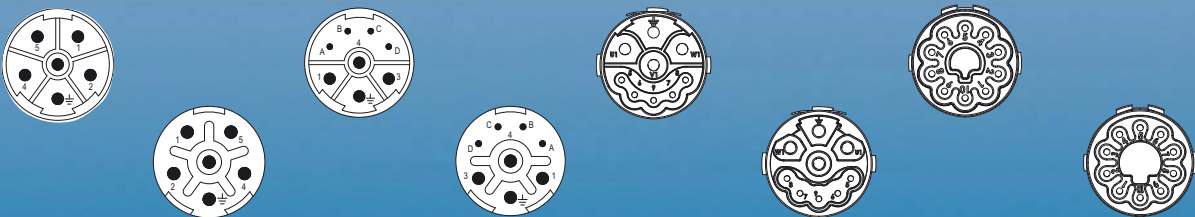
Housings

page 108



Inserts

page 113



Accessories

page 115



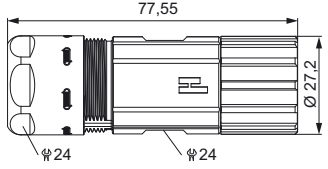
Power Connectors M 23

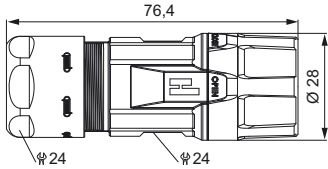
Mechanical Data	Materials and Technical Data
Housing	Copper-Zinc alloy Die Cast
Housing surface	Nickel plated other surface upon request
Inserts (for contacts)	Thermoplastic Polyamid PA 6 (Nylon 6/6), PBT Fire protection class V-0
Contacts	Brass Alloy
Contact surface at point of contact	Nickel and gold plated (0,25 µm Au)
Minimum mating cycles	> 1000
Seals / O-Rings	Buna-N standard optional Viton® (Viton is a registered trademark of DuPont)
Temperature range	-40° C – 125° C (-40 °F – 257 °F)
Type of contacts	Crimp
Protection	IP 67 / IP 69K per EN 60 529 (connected), NEMA 4x
Cable diameter range	7 – 17 mm (.28 – .67")

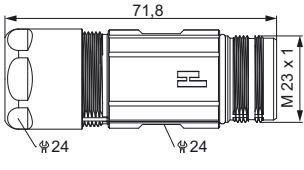
Electrical Data					
Number of positions	5 + PE	4 + 3 + PE		5 + 3 + PE	
Number of contacts	6	4	4	5	4
Contact-Ø [mm]	2	1	2	1	2
Nominal current ¹⁾ [A]	28	8	28	10	28
Nominal voltage ²⁾ [V~] Degree of Protection 3 ³⁾	600	300	600	250	630
Test voltage (Breakdown voltage) ⁴⁾ [V~]	4000	2500	4000	2500	4000
Insulation resistance [MΩ]	> 10 ¹³	> 10 ¹³		> 10 ¹³	
Max. contact resistance [mΩ]	3	3		3	

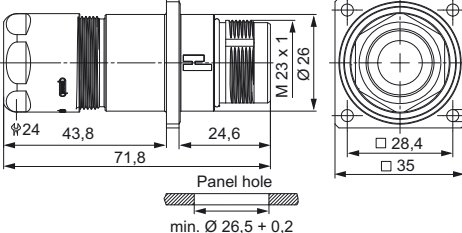
¹⁾, ²⁾, ³⁾, ⁴⁾ See Technical Informations page 14

Power Connectors M 23 / Housing

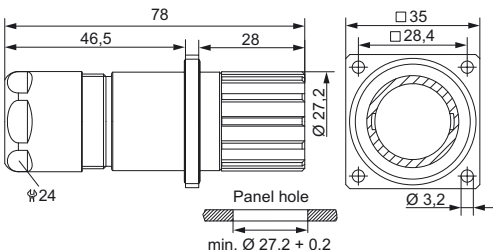
Straight Connector, Female Thread	Cable-Ø	Part number
 	7 – 12 mm (.27 – .47").....7.550.500.000 11 – 17 mm (.43 – .67").....7.550.600.000	
Contacts and inserts page 113 • Assembly instructions page 121		

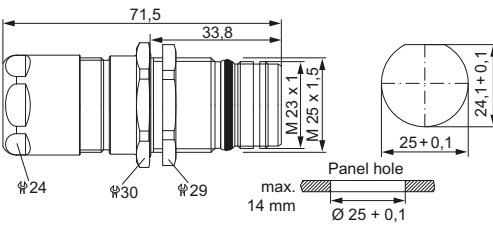
Straight Connector, Female Thread TWILOCK / TWILOCK-S *	Cable-Ø	Part number
 	7 – 12 mm (.24 – .47").....7.556.500.000 11 – 17 mm (.43 – .67").....7.556.600.000 * Compatible to Speedtec 7 – 12 mm (.24 – .47").....7.556.500.00S 11 – 17 mm (.43 – .67").....7.556.600.00S	
Contacts and inserts page 113 • Assembly instructions page 121		

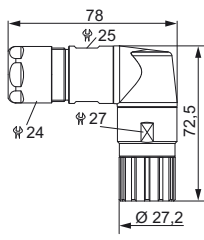
Straight Connector, Male Thread	Cable-Ø	Part Number
 	7 – 12 mm (.27 – .47").....7.560.500.000 11 – 17 mm (.43 – .67").....7.560.600.000	
Contacts and inserts page 113 • Assembly instructions page 121		

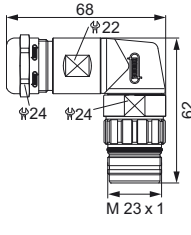
Panel Connector, Male Thread, with Strain Relief	Cable-Ø	Part Number
 	4 holes Ø 3,2 mm (.13"), front or rear mounting 7 – 12 mm (.27 – .47").....7.683.500.000 11 – 17 mm (.43 – .67").....7.683.600.000	
Contacts and inserts page 113 • Assembly instructions page 121		

Power Connectors M 23 / Housing

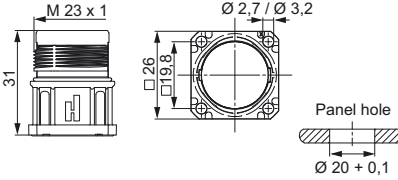
Cable-Ø	Part Number	Panel Connector, Female Thread, with Strain Relief
4 holes Ø 3,2 mm (.13"), front or rear mounting 7 – 12 mm (.27 – .47").....7.681.500.000 11 – 17 mm (.43 – .67").....7.681.600.000		
		
Contacts and inserts page 113 • Assembly instructions page 121		

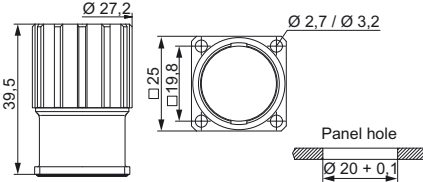
Cable-Ø	Part Number	Panel Connector, Male Thread, with Strain Relief
Single hole mounted, rear mounting, thread M 25 x 1,5 7 – 12 mm (.27 – .47").....7.653.500.000 11 – 17 mm (.43 – .67").....7.653.600.000		
Including jam nut M 25 x 1,5		
		
Contacts and inserts page 113 • Assembly instructions page 121		

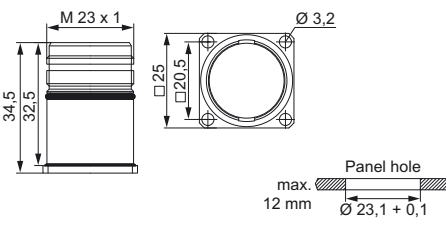
Cable-Ø	Part Number	Right Angle Connector, Female Thread, rotating
7 – 12 mm (.27 – .47").....7.576.500.000 11 – 17 mm (.43 – .67").....7.576.600.000		
		
Contacts and inserts page 113 • Assembly instructions page 124		

Cable-Ø	Part Number	Right Angle Connector, Male Thread, rotating
7 – 12 mm (.27 – .47").....7.580.500.000 10 – 14 mm (.39 – .55").....7.580.600.000		
		
Contacts and inserts page 113 • Assembly instructions page 124		

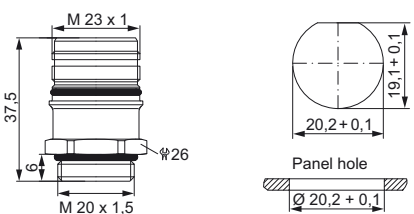
Power Connectors M 23 / Housing

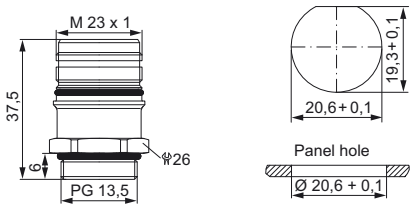
Panel Connectors, Male Thread, Front Mounting		Type	Part Number
		4 holes Ø 3,2 mm (.13")	7.601.000.000
		4 holes Ø 2,7 mm (.11")	7.605.000.000
		Optional: Flat gasket	
Contacts and inserts page 113 • Assembly instructions page 123			

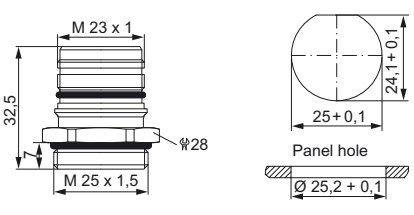
Panel Connector with knurled Nut, Front Mounting		Type	Part Number
		4 holes Ø 3,2 mm (.13")	7.641.000.000
		4 holes Ø 2,7 mm (.11")	7.645.000.000
		Optional: Flat gasket	
Contacts and inserts page 113 • Assembly instructions page 125			

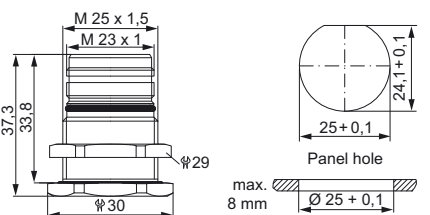
Panel Connector, Male Thread, Rear Mounting		Type	Part Number
		With anti-vibration O-Ring	
		4 holes Ø 3,2 mm (.13")	7.661.000.000
		Contacts and inserts page 113 • Assembly instructions page 123	

Power Connectors M 23 / Housing

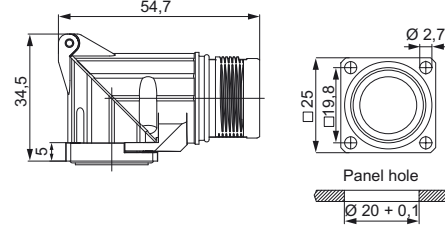
Type	Part Number	Panel Connector, Male Thread, Single Hole Mounted	
Front mounting Thread M 20 x 1,57.621.000.000 Options: Flat gasket, jam nut M 20 x 1,5			
Contacts and inserts page 113 • Assembly instructions page 126			

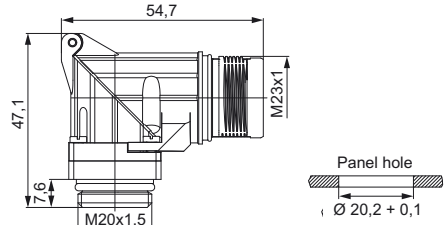
Type	Part Number	Panel Connector, Male Thread, Single Hole Mounted	
Front mounting Thread PG 13,57.623.000.000 Options: Flat gasket, jam nut PG 13,5			
Contacts and inserts page 113 • Assembly instructions page 126			

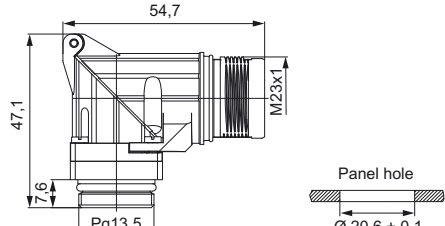
Type	Part Number	Panel Connector, Male Thread, Single Hole Mounted	
Front mounting Thread M 25x1,57.626.000.000 Options: Flat gasket, jam nut M 25 x 1,5			
Contacts and inserts page 113 • Assembly instructions page 126			

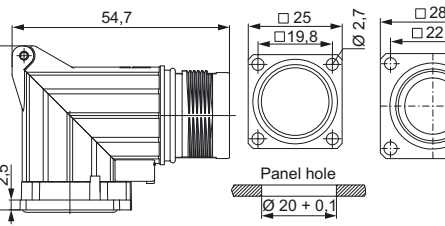
Type	Part Number	Panel Connector, Male Thread, Single Hole Mounted	
Rear mounting Thread M 25 x 1,57.651.000.000 Including jam nut M 25 x 1,5			
Contacts and inserts page 113 • Assembly instructions page 126			

Power Connectors M 23 / Housing

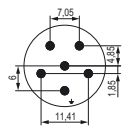
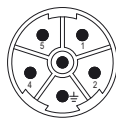
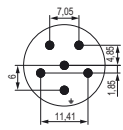
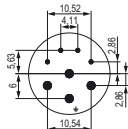
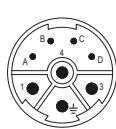
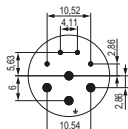
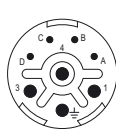
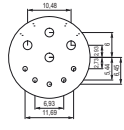
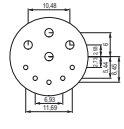
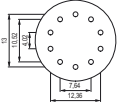
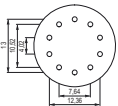
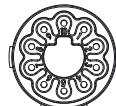
Right Angle Panel Connector, Male Thread		Type	Part Number
		4 holes Ø 2,7 mm (.11")7.635.000.000	
		Options: Flat gasket	
		Easy fastening with M2,5 x 10 mm or 4 x .39" long screws	
		Contacts and inserts page 113 • Assembly instructions page 127	

Right Angle Panel Connector, Male Thread, rotating		Type	Part Number
		335° rotating, single hole mounted	
		Thread M20 x 1,57.636.000.000	
		Contacts and inserts page 113 • Assembly instructions page 127	

Right Angle Panel Connector, Male Thread, rotating		Type	Part Number
		335° rotating, single hole mounted	
		Thread PG 13,57.637.000.000	
		Contacts and inserts page 113 • Assembly instructions page 127	

Right Angle Panel Connector, Male Thread, rotating		Type	Part Number
		300° rotating, locking screw at flange	
		4 x holes Ø 2,7 mm (.11") ..7.638.000.000	
		Flange 25 x 25 mm	
		4 x holes Ø 3,2 mm (.13") ..7.638.100.000	
		Flange 28 x 28 mm	
Contacts and inserts page 113 • Assembly instructions page 127			

Power Connectors M 23 / Inserts / Pinouts

Type of Contact	Part Number	Contact Arrangement, Mating View
6 x crimp pins 2 mm	7.084.951.101	 
6 x crimp sockets 2 mm	7.084.951.102	 
4 x crimp pins 1 mm 4 x crimp pins 2 mm	7.084.943.101	 
4 x crimp sockets 1 mm 4 x crimp sockets 2 mm	7.084.943.102	 
5 x crimp pins 1 mm * 4 x crimp pins 2 mm *	7.084.953.101	 
5 x crimp sockets 1 mm * 4 x crimp sockets 2 mm *	7.084.953.102	 
10 x crimp pins 1 mm	7.084.910.101	 
10 x crimp sockets 1 mm	7.084.910.102	 

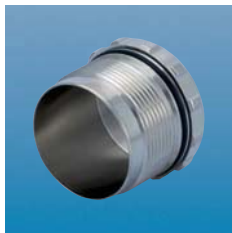
* Assembly instructions see page 122

Power Connectors M 23 / Contacts

Contacts	Type	Crimp Range	Part Number
	Crimp pin 1 mm, machined	0,14 – 1 mm ²7.010.941.001 (AWG 26 – 17)	
	Crimp pin 1 mm, machined	0,75 – 1,5 mm ²7.010.941.021 (AWG 18 – 16)	
	Crimp socket 1 mm, machined	0,14 – 1 mm ²7.010.941.002 (AWG 26 – 17)	
	Crimp pin 1 mm, machined	0,75 – 1,5 mm ²7.010.941.022 (AWG 18 – 16)	
	Crimp pin 2 mm, machined	0,75 – 2,5 mm ²7.010.942.001 (AWG 18 – 14)	
	Crimp pin 2 mm, machined	2,5 – 4 mm ²7.010.942.011 (AWG 14 – 12)	
	Crimp socket 2 mm, machined	0,75 – 2,5 mm ²7.010.942.002 (AWG 18 – 14)	
	Crimp socket 2 mm, machined	2,5 – 4 mm ²7.010.942.012 (AWG 14 – 12)	

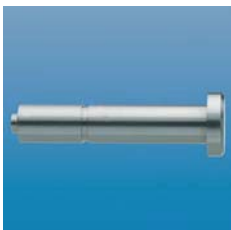
See page 128 for crimp tool instructions and proper setting

Power Connectors M 23 / Accessories

Type	Part Number	Accessories
Plastic protective cap for connectors with male thread	7.000.900.101	
for connectors with female thread	7.000.900.102	
Brass protective cap for connectors with female thread	7.010.900.183	
Brass protective cap for connectors with male thread	7.010.900.102	
Brass protective cap with chain for connectors with female thread	Length 70 mm 7.010.9S0.783 Length 100 mm 7.010.9S1.083	
Brass protective cap with chain for connectors with male thread	Length 70 mm 7.010.9S0.702 Length 100 mm 7.010.9S1.002	

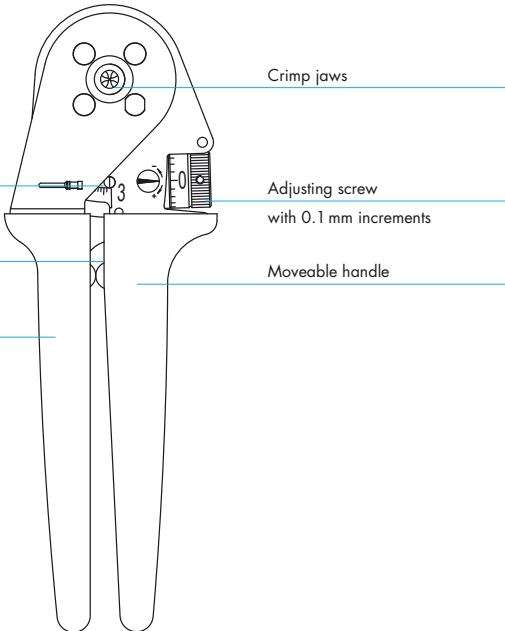
Power Connectors M 23 / Accessories

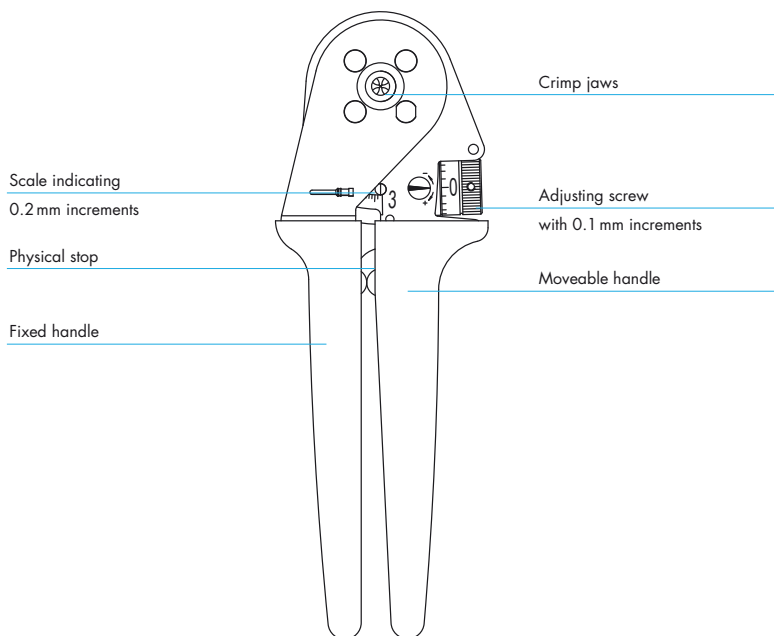
Accessories	Type	Part Number
	Crimp tool for manual crimping of machined crimp contacts. Works with contacts for power or signal.....	7.000.900.901
	Operating instructions on page 117	
	Adaptor flange for Straight Connectors	7.010.900.128
	Adapter for Conduit Fittings	Snapflex 167.010.900.204 DN 127.010.900.205 Snapflex 207.010.900.206 DN 147.010.900.207 Snapflex 257.010.900.208 DN 177.010.900.209

Locator	Type	Part Number
	Locator for Crimp Tool DMC M22520 with positioner	7.000.9DM.C06
	Locator for Crimp Tool DMC M22520 with positioner	7.000.9DM.C07
	For HUMMEL Contact: 7.010.941.001, 7.010.942.001, 7.010.942.011	
	For HUMMEL Contact: 7.010.941.002, 7.010.942.002, 7.010.942.012	

Crimp Tool for Power Connectors M 23

Type	Part Number	Crimp Tool
Crimp tool	7.000.900.901	
Application The four indent crimp tool 7.000.900.901 has been developed for optimal crimping of machined contacts with diameters from 0.14 to 6.0 mm ² (26 through 10 AWG).		
How to Crimp The reference table indicates the correct locator position to be selected and the crimp depth to be adjusted for the contact to be crimped. The contact is then inserted through the access hole of the tool on the opposite side of the locator. The contact is held in place by closing the handles to the first lock-in position thus preventing the contact from falling out of the tool and facilitating insertion of the wire into the contact. The precision ratchet assures consistently accurate crimping every time by forcing the tool to be closed all the way completing the crimping cycle before the tool can be opened again.		
Exchange of the Locator The locator can be exchanged by removing the socket head cap screw with a socket wrench. It can then be disassembled from the hex head screw by turning it counter-clockwise.		





Crimp Tool for Power Connectors M23

Crimp Tool



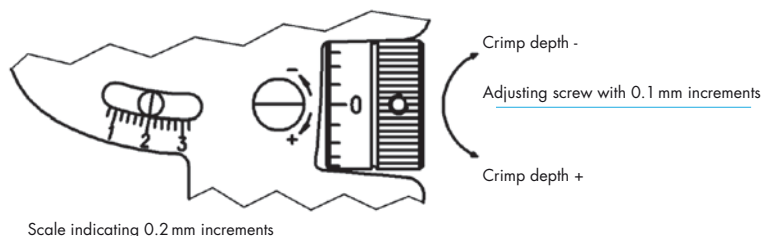
Adjustment of Crimp Depth

Crimp depth can be adjusted as follows:

Turn the adjusting screw clockwise for reducing the crimp depth and counter-clockwise for increasing the crimp depth.

Adjustment Increments:

- 1 space on the adjusting screw $\hat{=}$ adjustment by 0.01 mm
- 1 full rotation of adjusting screw $\hat{=}$ adjustment by 0.2 mm (indication on the screw as well as on the rough scale)
- 5 rotations of the adjusting screw $\hat{=}$ adjustment by 1 mm (indication on the scale)



Control of Crimp Depth

Crimp tool adjustment is done at the factory, but with frequent use, periodic calibration is recommended to insure accuracy. This is easily accomplished with a 2.0 mm $\varnothing$ wire gauge as follows.

A crimp depth of 2.0 mm is set by means of the adjusting screw (scale mark at „2“, screw mark at „0“ as shown in the fig. above) and the tool in the closed position. After insertion of the gauge, there must be just enough space for moving the gauge inside the entry hole. If the opening is too small or too large to exactly match the gauge, the deviation (+/-) can be checked by the precision setting of the screw. Please contact the factory in case the deviation exceeds the tolerances specified by the contract manufacturer.

Maintenance and Repair

Keep the tool clean and properly stored when not in service. All pivot points need to be oiled regularly and the spring clips securing the bolts have to always be in place. For repair please send the tool back to the factory.

Crimp Tool for Power Connectors M 23

Crimp Tool Setting for HUMMEL Crimp Contacts (Crimp Tool 7.000.900.901)					
Part Number	Crimp Contact	Cross Section mm ²	AWG	Crimp Tool Setting mm	Locator Setting
7.010.901.001	Crimp pin (signal) 1 mm	0,14	26	0,75	11
		0,25	24	0,82	11
		0,35	22	0,9	11
		0,50	20	1	11
		0,75	18	1,08	11
		1,0	17	1,2	11
7.010.901.012	Crimp socket (signal) 1 mm	0,14	26	0,75	12
		0,25	24	0,8	12
		0,35	22	0,87	12
		0,50	20	0,97	12
7.010.901.002	Crimp socket (signal) 1 mm	0,50	20	0,95	12
		0,75	18	1	12
		1,0	17	1,05	12
7.010.901.501	Crimp pin (signal) 1,5 mm	0,14	26	0,75	3
		0,25	24	0,82	3
		0,35	22	0,9	3
		0,50	20	0,96	3
		0,75	18	1,03	3
		1,0	17	1	3
7.010.901.512	Crimp socket (signal) 1,5 mm	0,14	26	0,75	4
		0,25	24	0,8	4
		0,35	22	0,87	4
		0,50	20	0,97	4
7.010.901.502	Crimp socket (signal) 1,5 mm	0,50	20	0,95	4
		0,75	18	1	4
		1,0	17	1,05	4
7.010.902.001	Crimp pin (signal) 2 mm	0,75	18	1,3	5
		1,0	17	1,4	5
		1,5	16	1,55	5
		2,5	14	1,75	5
7.010.902.002	Crimp socket (signal) 2 mm	0,75	18	1,3	6
		1,0	17	1,4	6
		1,5	16	1,55	6
		2,5	14	1,75	6
7.010.941.001	Crimp pin (power) 1 mm	0,14	26	0,75	1
		0,25	24	0,8	1
		0,35	22	0,85	1
		0,50	20	1,03	1
		0,75	18	1,08	1
		1,0	17	1,13	1

Crimp Tool for Power Connectors M23

Crimp Tool Setting for HUMMEL Crimp Contacts (Crimp Tool 7.000.900.901)

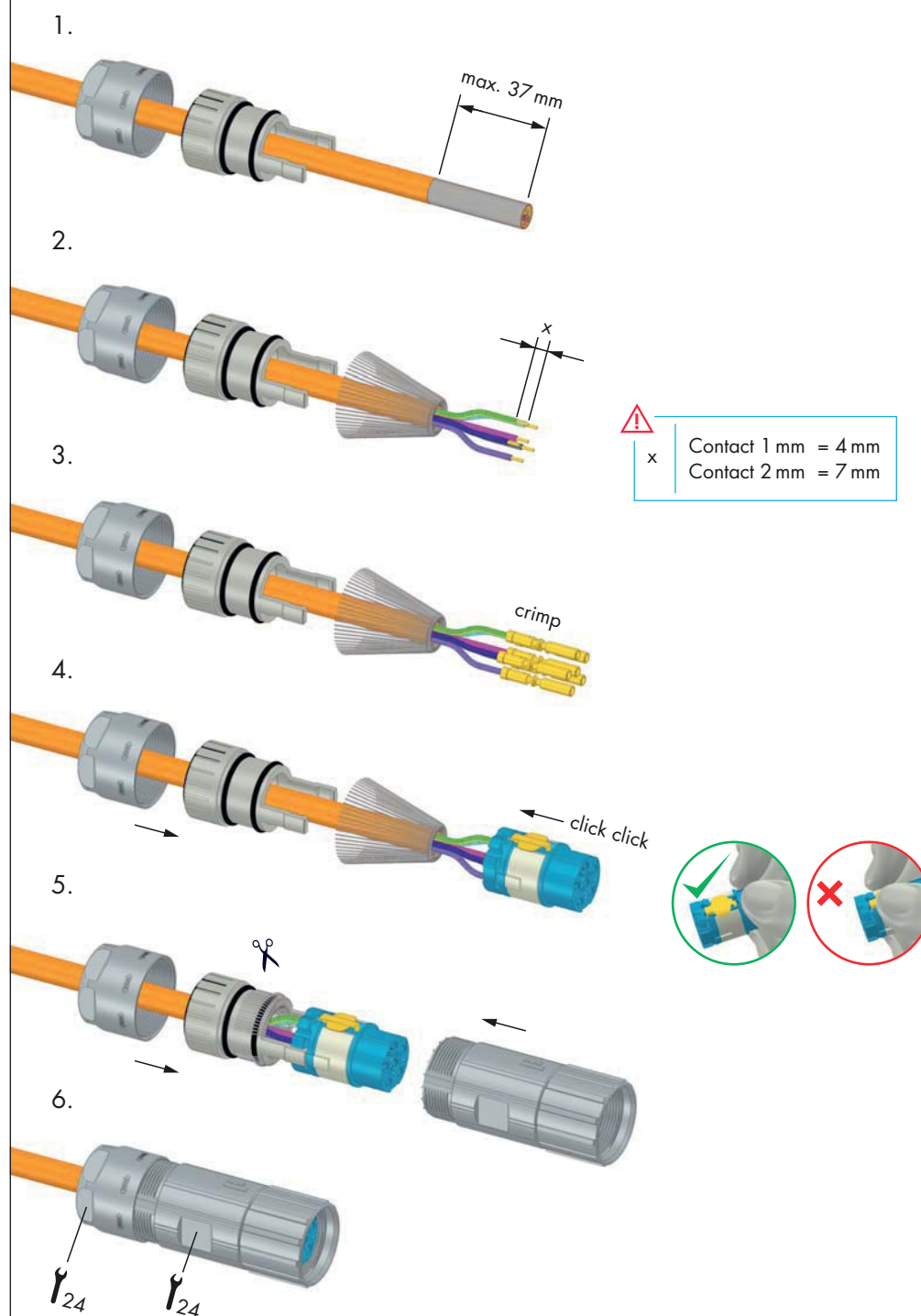
Part Number	Crimp Contact	Cross Section mm ²	AWG	Crimp Tool Setting mm	Locator Setting
7.010.941.021	Crimp socket (power) 1 mm	0,75	18	0,79	1
		1	17	0,86	1
		1,5	16	0,99	1
7.010.941.002	Crimp socket (power) 1 mm	0,14	26	0,75	2
		0,25	24	0,8	2
		0,35	22	0,85	2
		0,50	20	0,89	2
		0,75	18	0,95	2
		1	17	1,02	2
7.010.941.022	Crimp socket (power) 1 mm	0,75	18	0,79	2
		1	17	0,86	2
		1,5	16	0,99	2
7.010.942.001	Crimp pin (power) 2 mm	0,75	18	1,3	7
		1	17	1,4	7
		1,5	16	1,55	7
		2,5	14	1,7	7
7.010.942.011	Crimp pin (power) 2 mm	2,5	14	1,47	7
		4	12	1,6	7
7.010.942.002	Crimp socket (power) 2 mm	0,75	18	1,3	8
		1	17	1,4	8
		1,5	16	1,55	8
		2,5	14	1,7	8
7.010.942.012	Crimp socket (power) 2 mm	2,5	14	1,47	8
		4	12	1,6	8

These values are only guidelines and actual conductor cross sections depend on manufacturer tolerances.

Please see assembly instructions on page 128

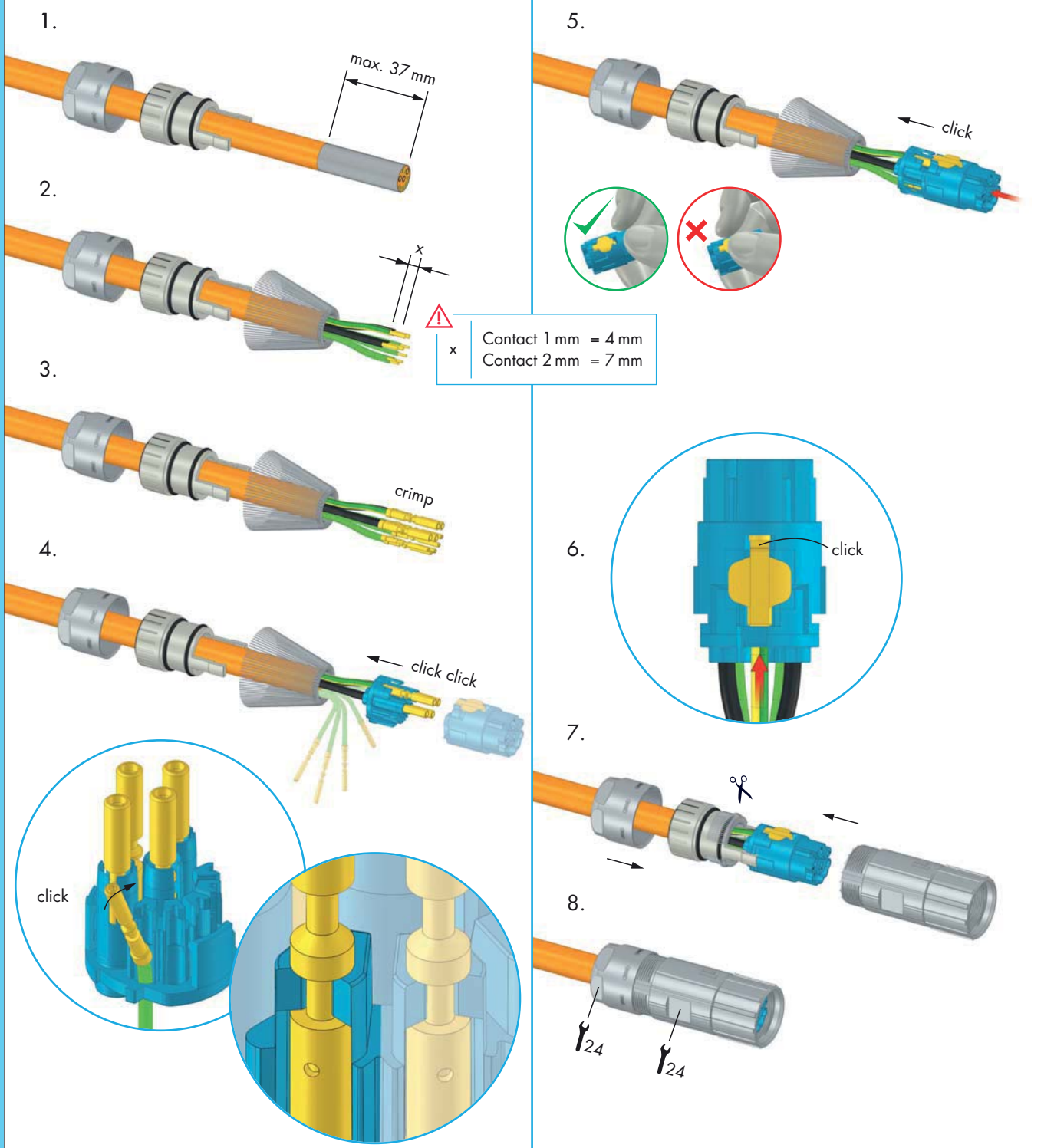
Power Connectors M23 / Assembly Instructions

Straight Connector, Female Thread



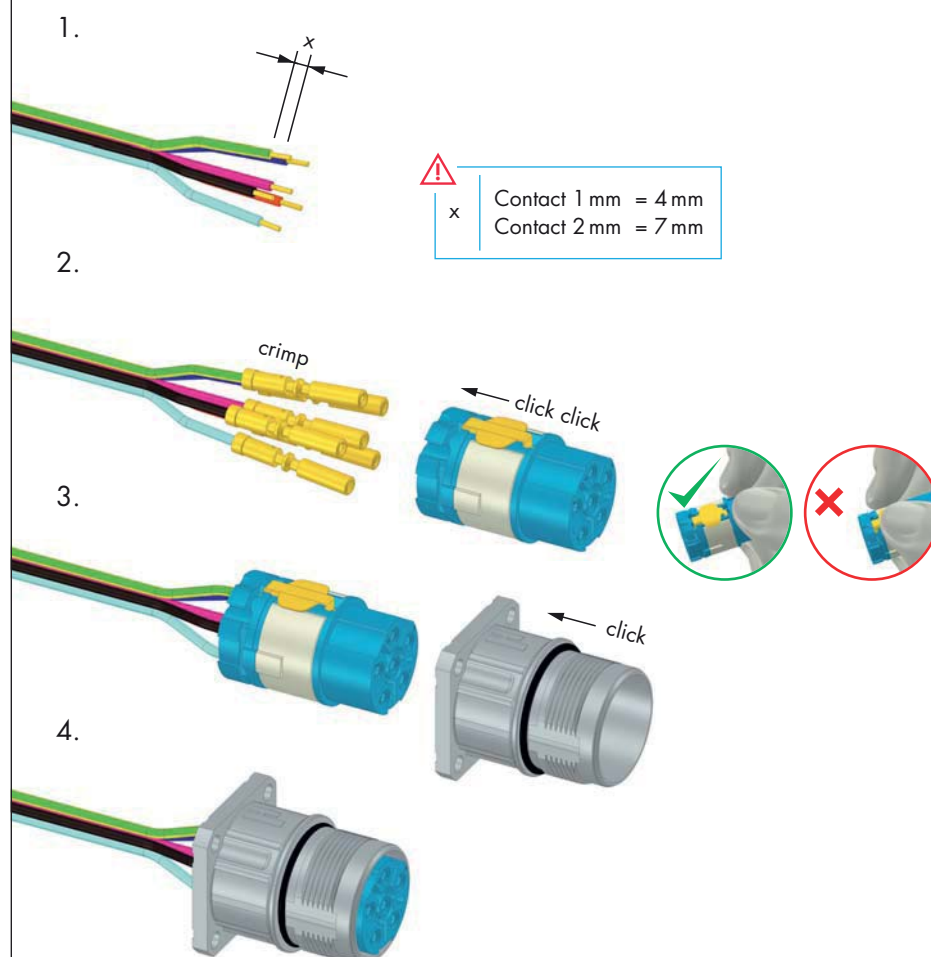
Power Connectors M 23 / Assembly Instructions

Straight Connector, Female Thread 5+3+PE



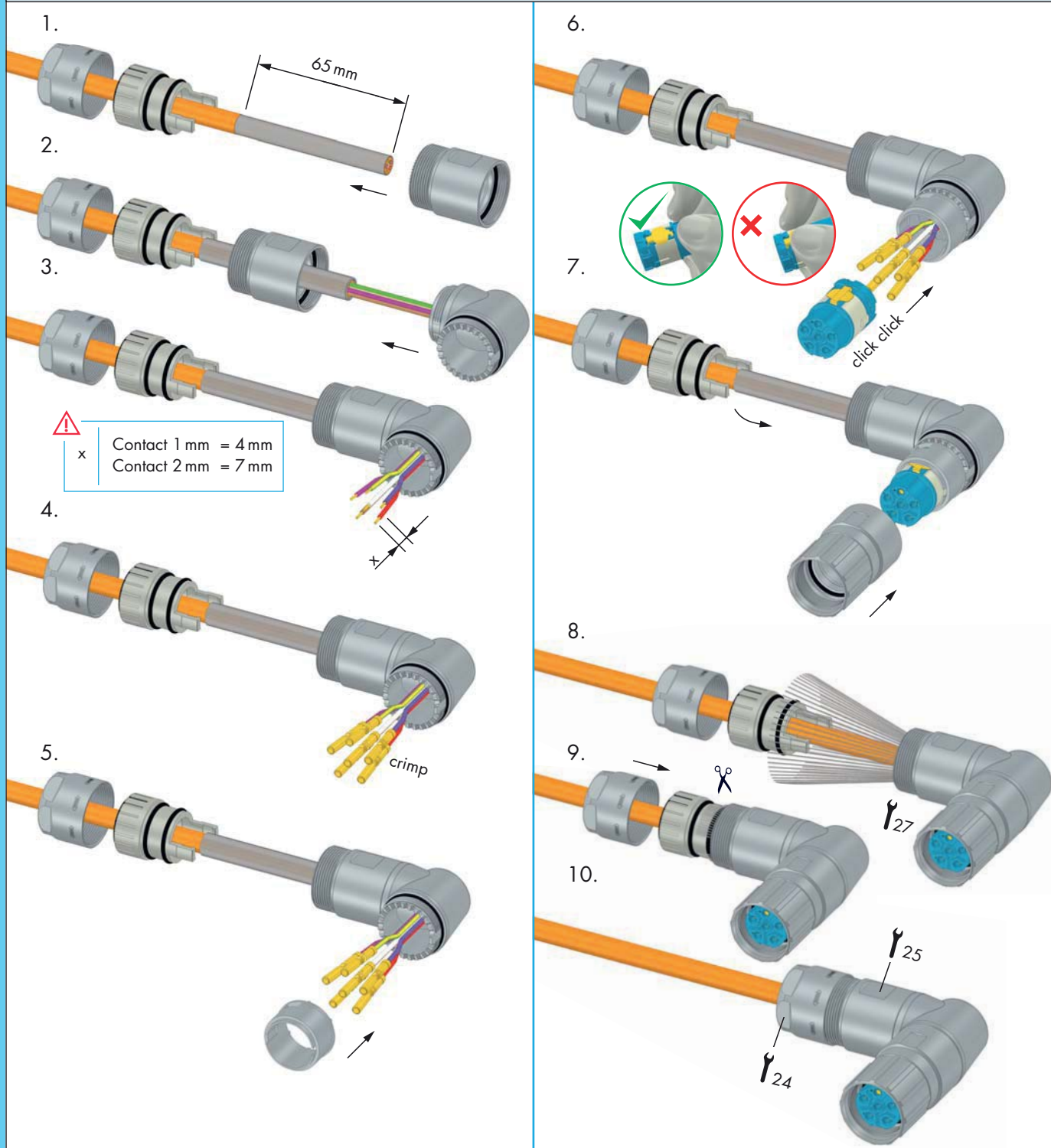
Power Connectors M23 / Assembly Instructions

Panel Connector, Male Thread



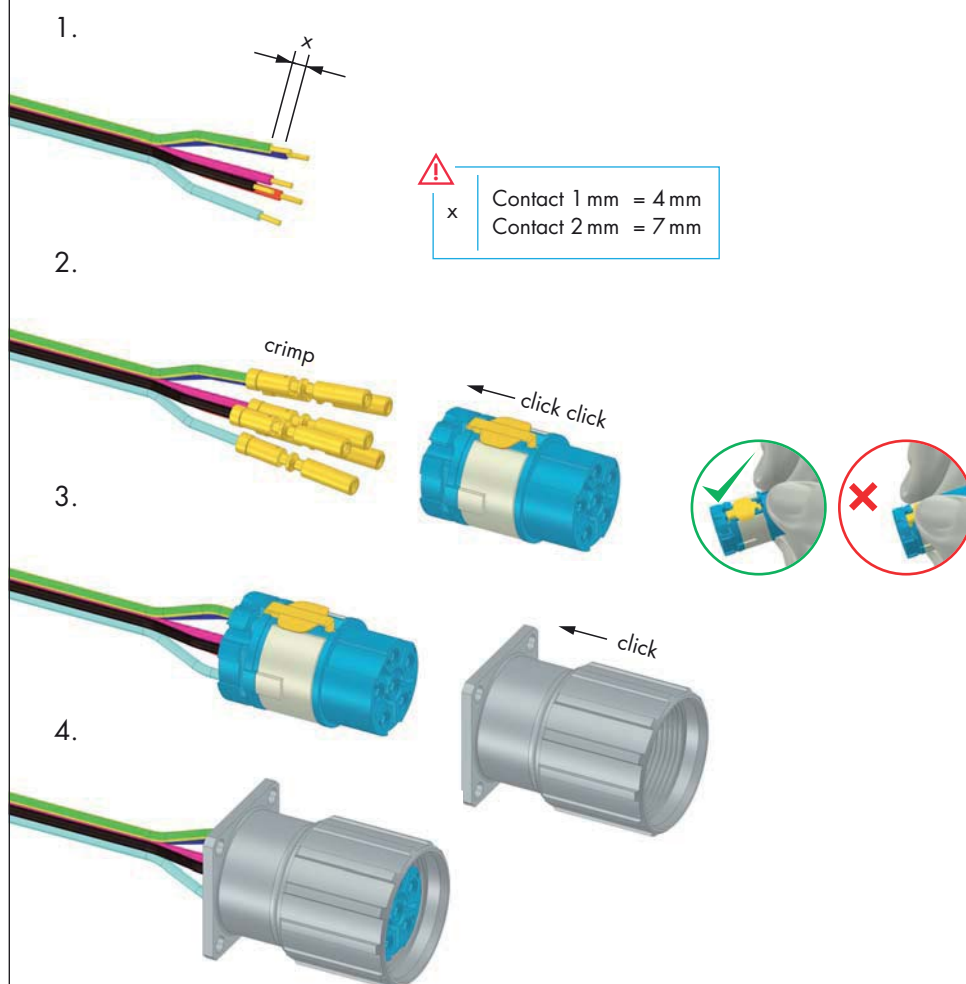
Power Connectors M 23 / Assembly Instructions

Right Angle Connector, rotating



Power Connectors M23 / Assembly Instructions

Panel Connector, Female Thread



Power Connectors M 23 / Assembly Instructions

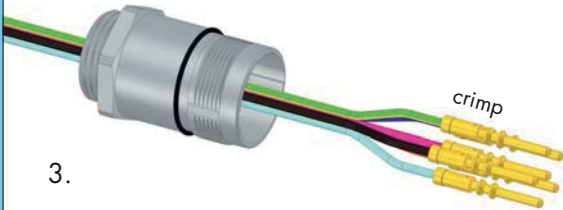
Panel Connector, Male Thread, Single Hole Mounted

1.

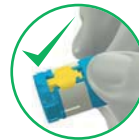
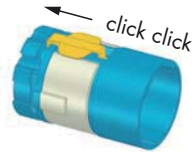


Contact 1 mm = 4 mm
Contact 2 mm = 7 mm

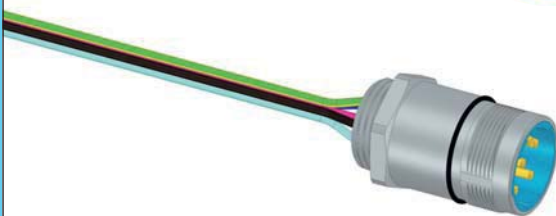
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3.



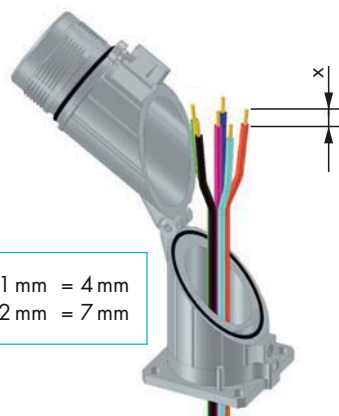
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Power Connectors M23 / Assembly Instructions

Right Angle Panel Connector

1.



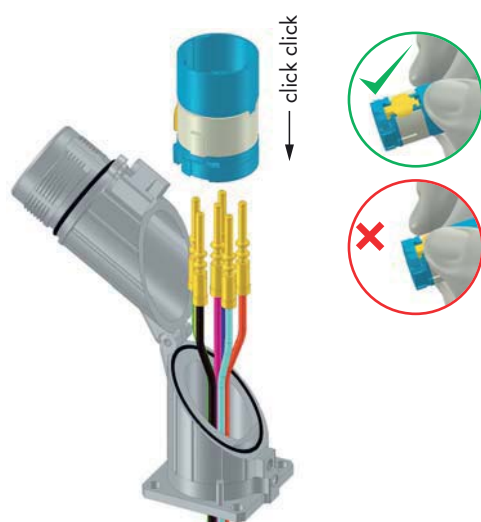
x

Contact 1 mm = 4 mm
Contact 2 mm = 7 mm

2.



3.



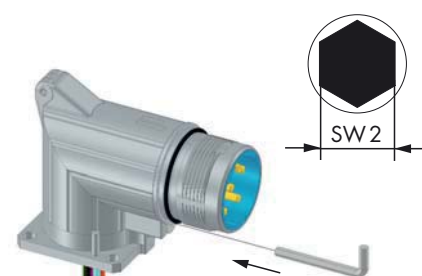
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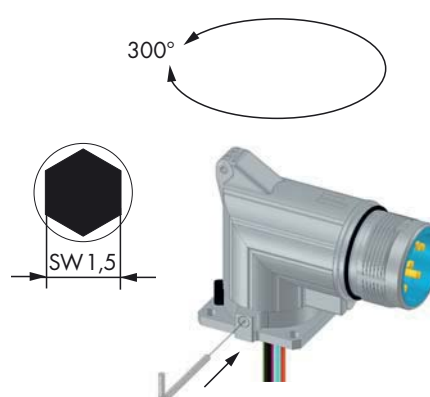
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6.

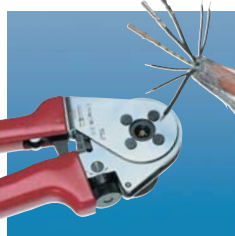


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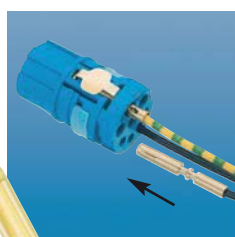
Crimping, Assembly and Disassembly

Crimping, Assembly and Disassembly



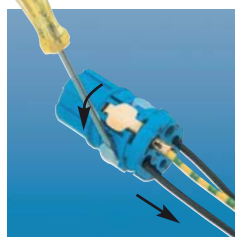
Crimping

- For 1 mm contacts strip wire ends 4 mm (.16") max., for 2 mm contacts strip wire ends 7 mm (.28") max.
- Dial appropriate setting of crimping tool (page 119/120)
- Push crimp contact into opening of crimping tool
- Insert stripped wire into the funnel shaped end of the crimp contact
- Squeeze handles of crimping tool together, connecting contact to wire



Assembly

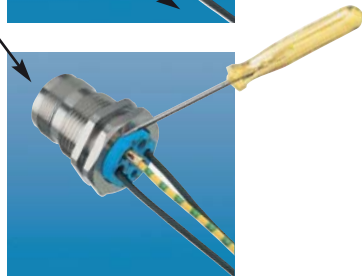
- Remove crimped assembly and pull on wire to test connection
- Push into desired position of insert
Note: For 8-pole inserts (4 + 3 + PE) it is recommended to assemble the large contacts first.



Disassembly of Contacts from Insert

A small screw driver is required.

- Using the screw driver, push the white clip ring out of the insert
- Pull the contacts out of the insert
- Replace the white clip ring
- Reinsert the contacts



Disassembly of Insert from Housing

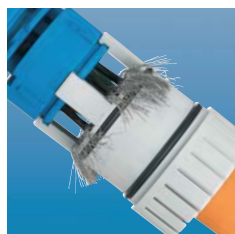
A small screw driver is required. Push locking tongue, located above the PE-contact, down. By simultaneously pushing on the front side of the insert, it can be disassembled from the housing.

Shielding

- Assemble strain relief insert with insert
- Fold stranding of the shield back over the first O-Ring of the strain relief insert
- Cut back the overextending braid



The stranding of the shield is not allowed to touch the second O-Ring. Otherwise the assembly may not be proof.



Power Connectors Size 1,5 (M 40)



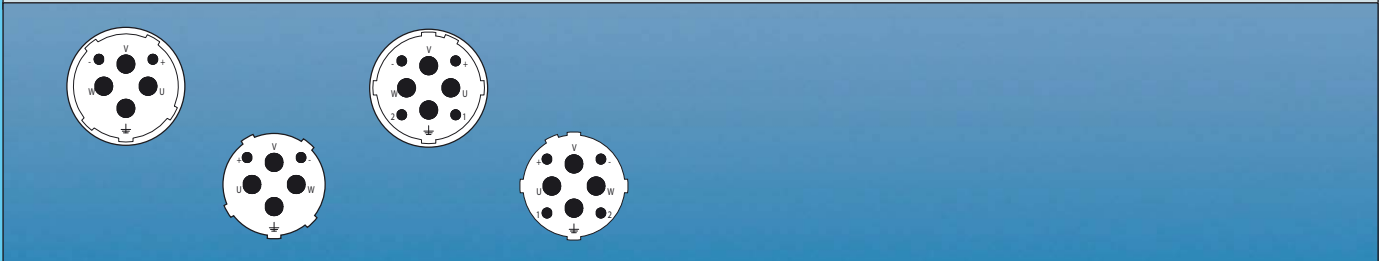
Housings

page 132



Inserts

page 135



Accessories

page 138



Power Connectors Size 1,5 (M40)

Mechanical Data	Materials and Technical Data
Housing	Copper-Zinc alloy Die Cast
Housing surface	Nickel plated, other surface upon request
Inserts (for contacts)	Thermoplastic Polyamid PA 6 (Nylon 6/6), PBT Fire protection class V-0
Contacts	Brass Alloy
Contact surface at point of contact	Nickel and gold plated (0,25 µm Au)
Minimum mating cycles	> 500
Seals / O-Rings	Buna-N standard optional Viton® (Viton is a registered trademark of DuPont)
Temperature range	-40° C – 125° C (-40 °F – 257 °F)
Type of contacts	Crimp
Protection	IP 67 / IP 69 K per EN 60 529 (connected), NEMA 4x
Cable diameter range	13 – 28 mm (.51" – 1.10")

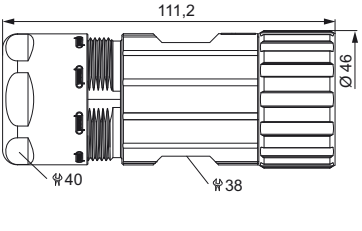
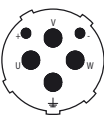
Electrical Data				
Number of positions	3 + 2 + PE		4 + 3 + PE	
Number of contacts	2	4	4	4
Contact-Ø [mm]	2	3,6	2	3,6
Nominal current ¹⁾ [A]	28	55	28	55
Nominal voltage ²⁾ [V~] Degree of Protection 3 ³⁾	300	600	300	600
Test voltage (Breakdown voltage) ⁴⁾ [V~]	2500	4000	2500	4000
Insulation resistance [MΩ]	> 10 ¹³		> 10 ¹³	
Max. contact resistance [mΩ]	3	1	3	1

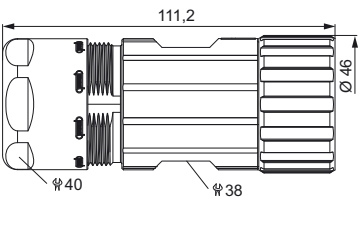
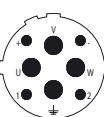
¹⁾, ²⁾, ³⁾, ⁴⁾ See Technical Informations page 14

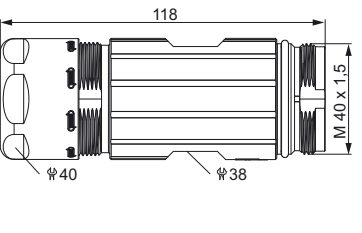
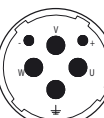


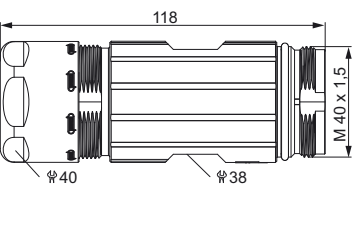
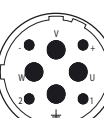
Standard delivery of M40 (size 1.5) Power Connector include Contact Insert

Power Connectors Size 1,5 (M 40)

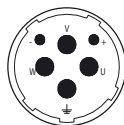
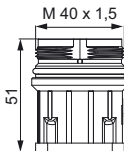
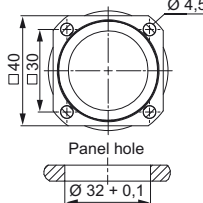
Straight Connector, Female Thread	Cable-Ø	Part Number
  	2 + 3 + PE, insert for sockets 13 – 18 mm (.51 – .71")7.710.623.000 17 – 24 mm (.67 – .97")7.710.723.000 21 – 28 mm (.83 – 1.10") ...7.710.823.000	
Contacts page 136 • Assembly instructions page 145		

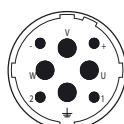
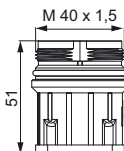
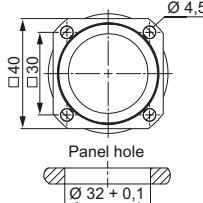
Straight Connector, Female Thread	Cable-Ø	Part Number
  	4 + 3 + PE, insert for sockets 13 – 18 mm (.51 – .71")7.710.643.000 17 – 24 mm (.67 – .97")7.710.743.000 21 – 28 mm (.83 – 1.10") ...7.710.843.000	
Contacts page 136 • Assembly instructions page 145		

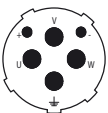
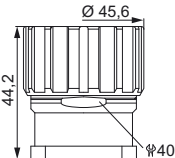
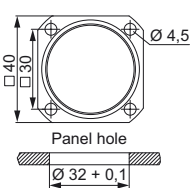
Straight Connector, Male Thread	Cable-Ø	Part Number
  	2 + 3 + PE, insert for pins 13 – 18 mm (.51 – .71")7.720.623.000 17 – 24 mm (.67 – .97")7.720.723.000 21 – 28 mm (.83 – 1.10") ...7.720.823.000	
Contacts page 136 • Assembly instructions page 145		

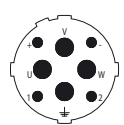
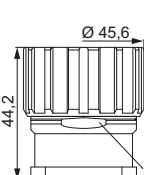
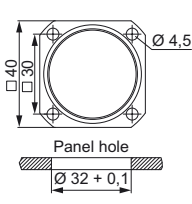
Straight Connector, Male Thread	Cable-Ø	Part Number
  	4 + 3 + PE, insert for pins 13 – 18 mm (.51 – .71")7.720.643.000 17 – 24 mm (.67 – .97")7.720.743.000 21 – 28 mm (.83 – 1.10") ...7.720.843.000	
Contacts page 136 • Assembly instructions page 145		

Power Connectors Size 1,5 (M40)

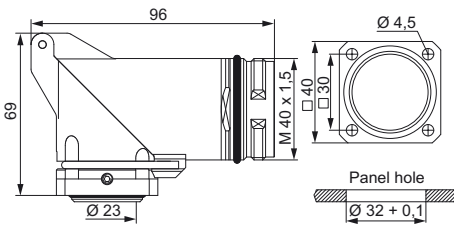
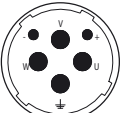
Type	Part Number	Panel Connector, Male Thread, Front Mounting		
2 + 3 + PE, insert for pins 4 holes Ø 4,5 mm (.18")7.740.023.000				
Contacts page 136 • Assembly instructions page 146				

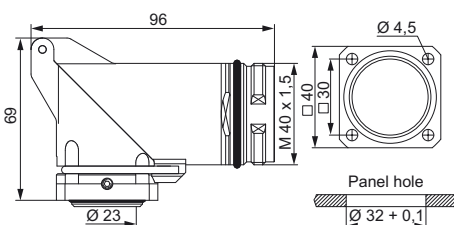
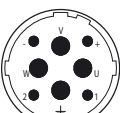
Type	Part Number	Panel Connector, Male Thread, Front Mounting		
4 + 3 + PE, insert for pins 4 holes Ø 4,5 mm (.18")7.740.043.000				
Contacts page 136 • Assembly instructions page 146				

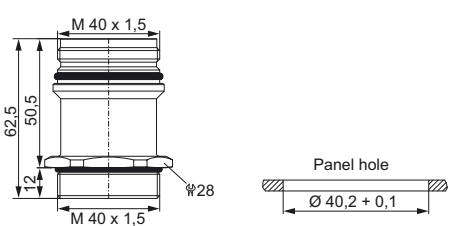
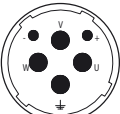
Type	Part Number	Panel Connector with knurled Nut, Front Mounting		
2 + 3 + PE, insert for sockets 4 holes Ø 4,5 mm (.18")7.744.023.000				
Contacts page 136 • Assembly instructions page 146				

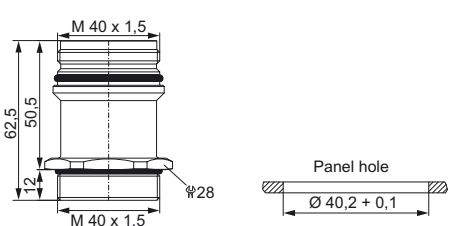
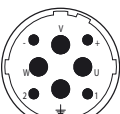
Type	Part Number	Panel Connector with knurled Nut, Front Mounting	
4 + 3 + PE, insert for sockets 4 holes Ø 4,5 mm (.18")7.744.043.000			
			
Contacts page 136 • Assembly instructions page 146			

Power Connectors Size 1,5 (M 40)

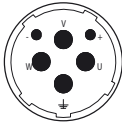
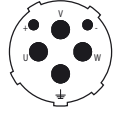
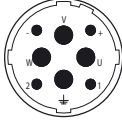
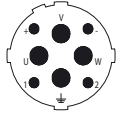
Right Angle Panel Connector, Male Thread, rotating	Type	Part Number
 	2 + 3 + PE, insert for pins 4 holes Ø 4,5 mm (.18")7.743.023.000  Contacts page 136 • Assembly instructions page 147	

Right Angle Panel Connector, Male Thread, rotating	Type	Part Number
 	4 + 3 + PE, insert for pins 4 holes Ø 4,5 mm (.18")7.743.043.000  Contacts page 136 • Assembly instructions page 147	

Panel Connector, Male Thread, Single Hole Mounting	Type	Part Number
 	Front mounting, 2 + 3 + PE, insert for pins Thread M 40 x 1,57.742.023.000  Contacts page 136 • Assembly instructions page 146	

Panel Connector, Male Thread, Single Hole Mounting	Type	Part Number
 	Front mounting, 4 + 3 + PE, insert for pins Thread M 40 x 1,57.742.043.000  Contacts page 136 • Assembly instructions page 146	

Power Connectors Size 1,5 (M40) / Required Contacts

Type of Contact		Contact Arrangement, Mating View
Insert for pins 2 + 3 + PE.....	2 x crimp pins 2 mm 4 x crimp pins 3,6 mm	
Insert for sockets 2 + 3 + PE	2 x crimp sockets 2 mm 4 x crimp sockets 3,6 mm	
Insert for pins 4 + 3 + PE.....	4 x crimp pins 2 mm 4 x crimp pins 3,6 mm	
Insert for sockets 4 + 3 + PE	4 x crimp sockets 2 mm 4 x crimp sockets 3,6 mm	

Power Connectors Size 1,5 (M40) / Contacts

Contacts	Type of Contact	Crimp Range	Part Number
	Crimp pin 2 mm, machined	 1 – 4 mm ² (AWG 17 – 12)	7.015.952.001
	Crimp socket 2 mm, machined	... 1 – 4 mm ² (AWG 17 – 12)	7.015.952.002
	Crimp pin 3,6 mm, machined	 1,5 – 4 mm ² (AWG 16 – 12)	7.015.953.601
	Crimp socket 3,6 mm, machined	.. 1,5 – 4 mm ² (AWG 16 – 12)	7.015.953.602
	Crimp pin 3,6 mm, machined	 6 mm ² (AWG 10)	7.015.953.611
	Crimp socket 3,6 mm, machined	.. 6 mm ² (AWG 10)	7.015.953.612
	Crimp pin 3,6 mm, machined	 10 mm ² (AWG 8)	7.015.953.621
	Crimp socket 3,6 mm, machined	.. 10 mm ² (AWG 8)	7.015.953.622

Crimp Tool Settings see page 144

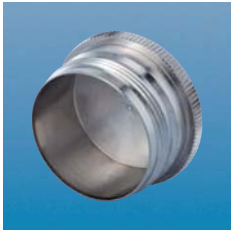
For appropriate setting of crimp tool see page 148

Power Connectors Size 1,5 (M 40) / Contacts

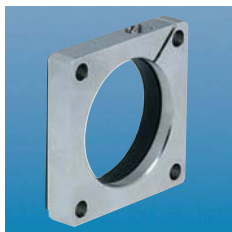
Type	Part Number	Contacts
Crimp pin 3,6 mm, machined16 mm ² (AWG 6)	7.015.953.631	
Crimp socket 3,6 mm, machined..16 mm ² (AWG 6)	7.015.953.632	
Crimp Tool Settings see page 144		

For appropriate setting of crimp tool see page 148

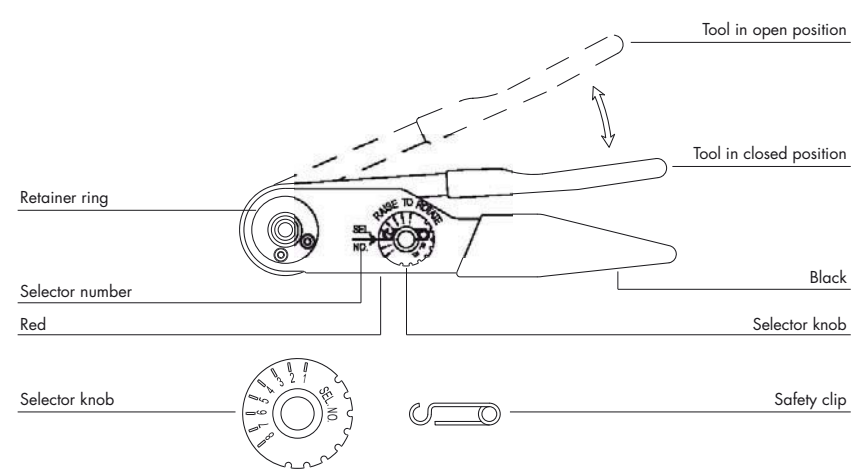
Power Connectors Size 1,5 (M40) / Accessories

Accessories	Type	Part Number
	Plastic protective cap for connectors with female thread.....	7.000.900.152
	Plastic protective cap for connectors with male thread	7.000.900.151
	Brass protective cap for connectors with female thread.....	7.015.900.103
	Brass protective cap for connectors with male thread	7.015.900.102
	Brass protective cap with rope for connectors with female thread.....	7.015.9S1.003
	Brass protective cap with rope for connectors with male thread	7.015.9S1.002

Power Connectors Size 1,5 (M40) / Accessories

Type	Part Number	Accessories
Adaptor flange for Straight Connectors	7.010.900.129	
Adapter for Conduit Fittings	Snapflex 25.....7.010.900.214 DN 237.010.900.215 Snapflex 32.....7.010.900.216 DN 297.010.900.217	
Crimp tool for manual crimping of machined crimp contacts up to 10 mm ² (AWG 8) for power connectors	7.000.900.902	
See page 140 / 141 for crimp tool instructions and page 144 for proper setting		
Crimp tool for manual crimping of machined crimp contacts 16 mm ² (AWG 6)	7.000.900.903	
See page 142 / 143 for crimp tool instructions and page 144 for proper setting		

Crimp Tool for Power Connectors Size 1,5 (M40)

Crimp Tool	Type	Part Number
	Crimp tool	7.000.900.902
	Application The four indent crimp tool 7.000.900.902 has been developed for optimal crimping of machined contacts with diameters from 1 to 10 mm² (18 through 8 AWG). How to Crimp The reference table indicates the correct locator position to be selected and the crimp depth to be adjusted for the contact to be crimped. The contact is then inserted through the access hole of the tool on the opposite side of the locator. The contact is held in place by closing the handles to the first lock-in position thus preventing the contact from falling out of the tool and facilitating insertion of the wire into the contact. The precision ratchet assures consistently accurate crimping every time by forcing the tool to be closed all the way completing the crimping cycle before the tool can be opened again. Exchange of the Locator The locator can be exchanged by removing the socket head cap screw with a socket wrench. Then it can be disassembled from the hex head screw by turning it counter-clockwise.	
		

Crimp Tool for Power Connectors Size 1,5 (M40)

Crimp Tool

Setting Up Instructions

1. Tool must be in open position
2. Place selected single position head assembly onto retainer ring with alignment pin in alignment pin hole
3. After single position head is seated against retainer ring, tighten socket head screws with 9/64 inch socket head screw key
4. Refer to dataplate on single position head. From the proper wire size column, determine the selector number that corresponds with the contact being used
5. Remove spring clip lock wire from selector knob. Raise selector knob and rotate until selector number is in line with index mark. Replace spring clip lock wire (optional)

Crimping Instructions

1. Insert contact and prepared wire through the indenter opening into positioner
2. Squeeze handles together until ratchet releases. Handle will return to open position. Remove crimped contact and wire

Removing Single Position Head

Loosen socket head screws until threads are disengaged from retainer ring and remove with a straightlifting motion

Gaging Instructions

The correct function of the crimp tool has to be checked with a gage (item no. 7.010.900.117).

„GO“-Gaging (green)

Operate tool to fully closed position. Maintain firm hand pressure on the tool handles. Insert „GO“ gage end. Gage must pass freely between indenter tips.

„NO-GO“-Gaging (red)

Operate tool to fully closed position. Maintain firm hand pressure on the tool handles. Insert „NO-GO“ gage end. The „NO-GO“ gage may partially enter the indenter opening, but must not pass completely through the opening.

Care of Tool

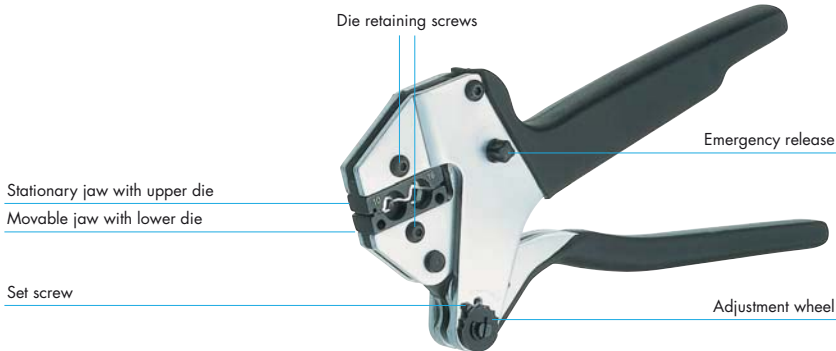
There is virtually no maintenance required. However, it is a good practice to keep indenter tips free of residual color band deposits and other debris. A small wire brush may be used for this purpose.

We strongly recommend that you:

1. Do not immerse tools in cleaning solution
2. Do not spray oil into tool to lubricate
3. Do not attempt to disassemble tool or make repairs

This is a precision crimp tool and should be handled as such.

Crimp Tool for Power Connectors Size 1,5 (M40)

Crimp Tool	Type	Part Number
	Crimp tool for contacts 16 mm² (AWG 6) 7.000.900.903 Application The hand crimp tool 7.000.900.903 has been developed for optimal crimping of a large variety of connectors and terminals by using different interchangeable crimping dies. Operation - Select crimp insert and install in tool - Insert and align crimp contact in tool - Compress tool until contact is held in place - Insert conductor into contact - Fully compress tool (tool will reopen automatically) - Remove crimped conductor from tool	Die retaining screws Emergency release Stationary jaw with upper die Movable jaw with lower die Set screw Adjustment wheel 

Crimp Tool for Power Connectors Size 1,5 (M40)

Crimp Tool

Adjustment of crimp force and height

Crimp force adjustment is done in the factory (120 – 180 N when unloaded). Tool frame and jaws are connected that way, an optimal crimping result will be obtained based on the hand force indicated above. In case the result (e.g. crimp height, pull-out force, etc.) does not meet the requirements of the plug manufacturer, the following reasons can be considered:

a) Normal wear of tool

Readjustment possible

b) Worn dies

Dies have to be replaced

The quality personnel is authorized to control and readjust these parameters as described below:

- Unscrew the set screw by means of a screw driver
- Rotating the adjustment wheel anticlockwise, the crimp force increases and the crimp height decreases (+)
- Rotating the adjustment wheel clockwise, the crimp force decreases and the crimp height increases (-)
- When readjusting the hand force shall not exceed 180 N
- Before using the tool, the operator has to check the adjustment wheel being firmly secured by the set screw

Maintenance

Keep the tool clean and properly stored when not in service. The joints need to be regularly oiled and the circlips securing the bolts have to be always in place. Never use abrasives or hard material to clean the jaws. Please contact the manufacturer when the tool needs to be repaired or in case of readjustment problems.



Crimp Tool for Power Connectors Size 1,5 (M40)

Crimp Tool Setting for HUMMEL Crimp Contacts (Crimp Tool 7.000.900.902)					
Part Number	Contact	Cross Section mm ²	AWG	Crimp Tool Setting mm	Locator Setting
7.015.952.001	Crimp pin 2 mm	1	17	2	3
		1,5	16	3	3
		2,5	14	4	3
		4	12	4	3
7.015.952.002	Crimp socket 2 mm	1	17	2	1
		1,5	16	3	1
		2,5	14	4	1
		4	12	4	1
7.015.953.601	Crimp pin 3,6 mm	1,5	16	3	2
		2,5	14	4	2
		4	12	5	2
7.015.953.602	Crimp socket 3,6 mm	1,5	16	3	4
		2,5	14	4	4
		4	12	5	4
7.015.953.611	Crimp pin 3,6 mm	6	10	5	2
7.015.953.612	Crimp socket 3,6 mm	6	10	5	4
7.015.953.621	Crimp pin 3,6 mm	10	8	7	2
7.015.953.622	Crimp socket 3,6 mm	10	8	7	4

These values are only guidelines and actual conductor cross sections depend on manufacturer tolerances.

Assembly information see page 148

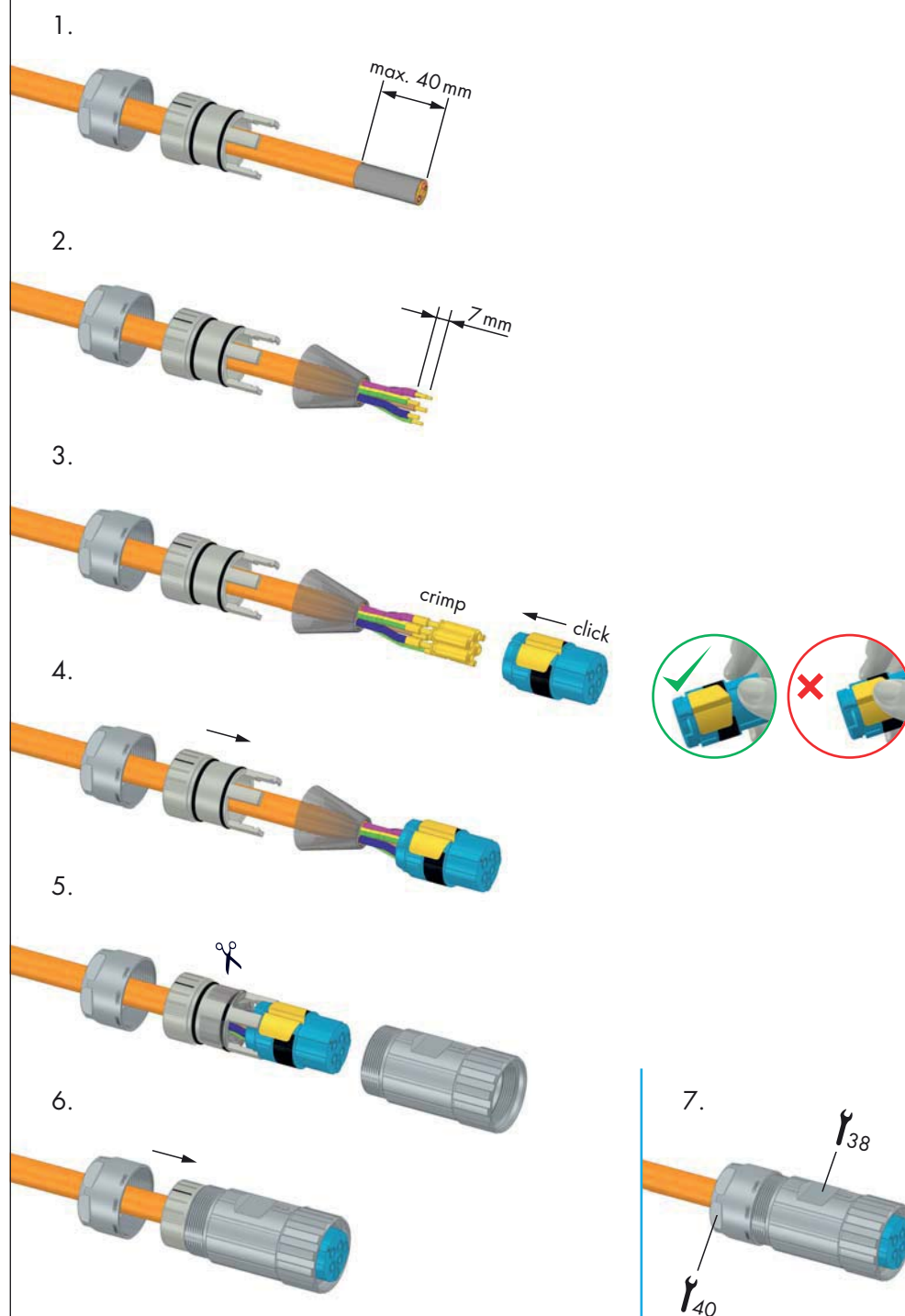
Crimp Tool Setting for HUMMEL Crimp Contacts (Crimp Tool 7.000.900.903)				
Part Number	Crimp Contact	Cross Section mm ²	AWG	Crimp Tool Setting
7.015.953.631	Crimp pin 3,6 mm	16	6	die 16
7.015.953.632	Crimp socket 3,6 mm	16	6	die 16

These values are only guidelines and actual conductor cross sections depend on manufacturer tolerances.

Assembly information see page 148

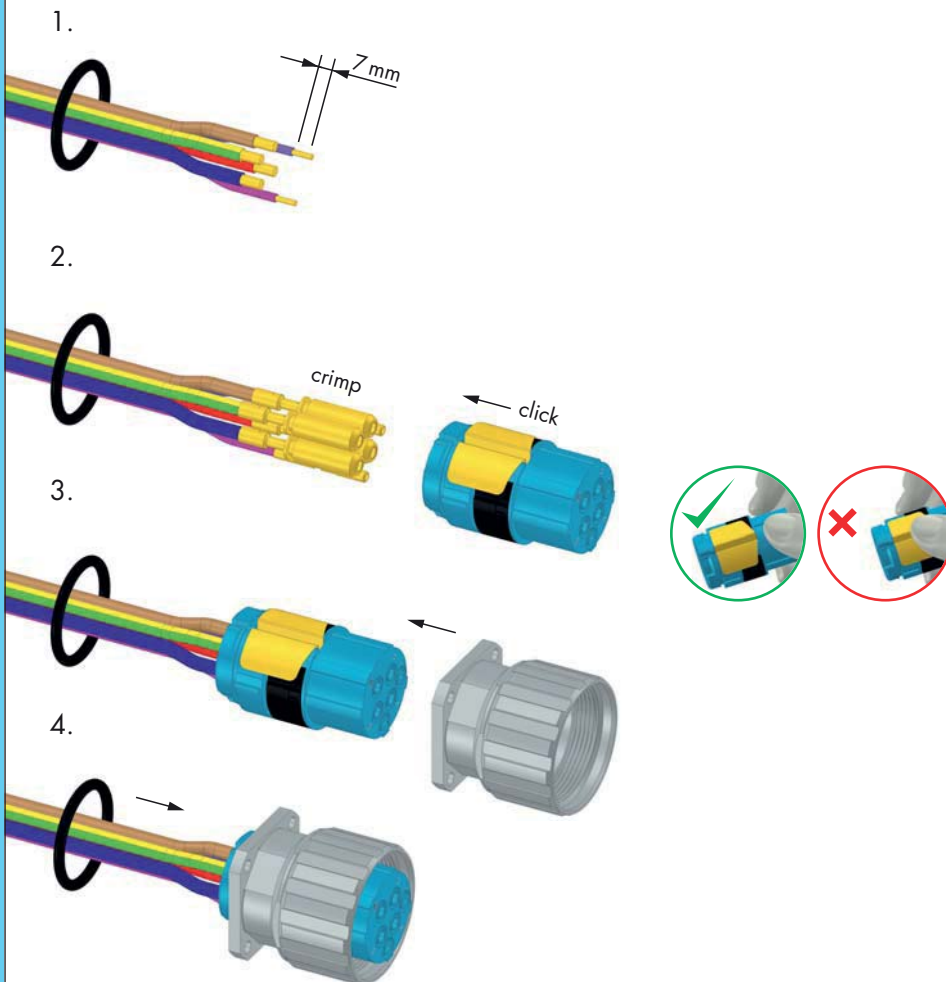
Power Connectors Size 1,5 (M40) / Assembly Instructions

Straight Connector, Female Thread / Male Threaded Connector



Power Connectors Size 1,5 (M40) / Assembly Instructions

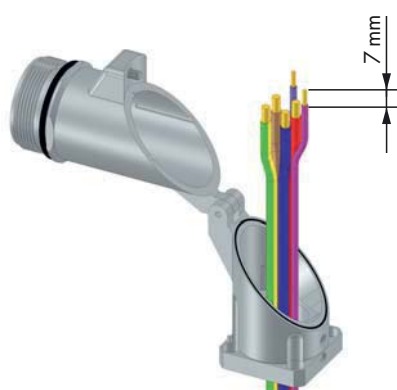
Panel Connector



Power Connectors Size 1,5 (M 40) / Assembly Instructions

Right Angle Panel Connector

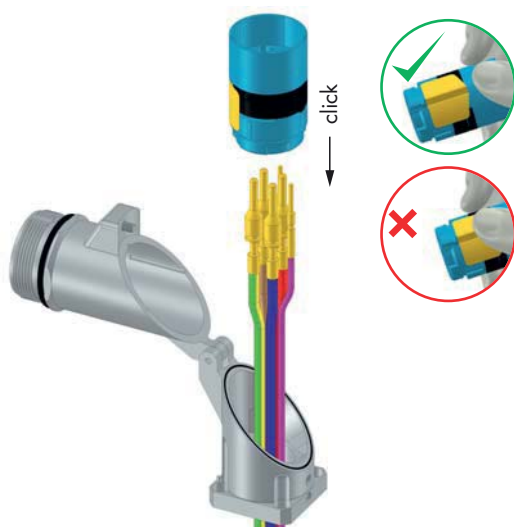
1.



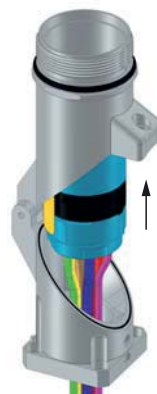
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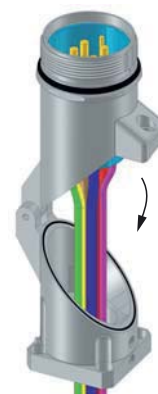
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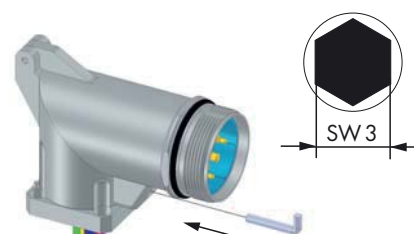
4.



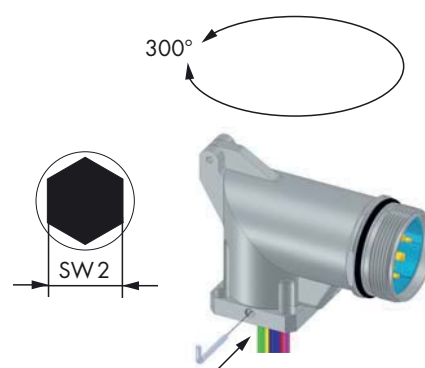
5.



6.



7.



Crimping, Assembly and Disassembly

Crimping, Assembly and Disassembly



Crimping

- Strip wire ends 7 mm (.28")
- Dial appropriate setting of crimp tool (page 144)
- Push crimp contact into opening of crimping tool
- Insert stripped wire into the funnel shaped end of the crimp contact
- Squeeze handles of crimping tool together connect contact to wire

Assembly

- Remove crimped assembly and pull on wire to test connection
 - Push into desired position of insert
- Note: It is recommended to assemble the large contacts first.

Disassembly of Contacts from Insert

A small screwdriver is needed to remove the contacts from the insert.

- Release the white ring by a screwdriver out of the insert
- Move the misplaced contacts out of the insert
- Enter the ring back into the insert
- Push the contacts back into insert



Shielding

- Assemble strain relief insert with insert
- Fold stranding of the shield back over the first O-Ring of the strain relief insert
- Cut back the overextending braid



The stranding of the shield is not allowed to touch the second O-Ring. Otherwise the assembly may not be proof.

Push-Pull Technology Size M 40



Housings

page 152



Inserts

page 135



Accessories

page 138



Push-Pull Connectors

Mechanical Data	Materials and Technical Data
Housing	Copper-Zinc alloy Die Cast
Housing surface	Nickel plated, other surface upon request
Inserts (for contacts)	Thermoplastic Polyamid PA 6 (Nylon 6/6), PBT Fire protection class V-0
Contacts	Brass Alloy
Contact surface at point of contact	Nickel and gold plated (0,25 µm Au)
Minimum mating cycles	> 250
Seals / O-Rings	Buna-N standard optional Viton® (Viton is a registered trademark of DuPont)
Temperature range	-40° C – 125° C (-40 °F – 257 °F)
Type of contacts power M40	Crimp
Protection	IP 67 / IP 69 K per EN 60 529 (connected), NEMA 4x

Additional Information

Electrical data see standard program

Power Connectors Size 1,5

page 131

Inserts and contacts see standard program

Power Connectors Size 1,5

page 135



We do not recommend disconnecting or connecting HUMMEL Connectors under load.

Characteristics

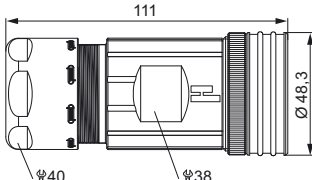
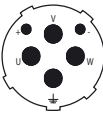
HUMMEL Push-Pull Connectors guarantee:

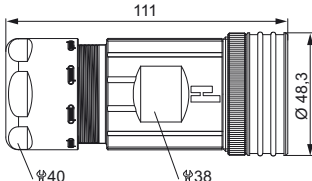
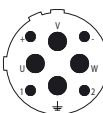
- Quick connecting cycle
- EMC compatible connection due to radially locked metal ring
- High protection rate
- Easy connection / disconnection even under tight space conditions
- Best reliability with optional safety ring



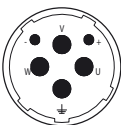
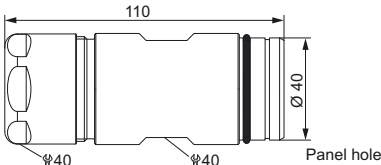
Standard delivery of M40 (size 1.5) Power Connector include Contact Insert

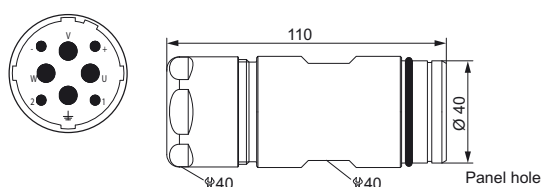
Power Connectors Size 1,5 / Push-Pull

Straight Connector, Female Thread	Cable-Ø	Part Number
  	2 + 3 + PE, insert for sockets 13 – 18 mm (.52 – .71").....7.715.623.000 17 – 24 mm (.67 – .95").....7.715.723.000 21 – 28 mm (.83 – 1.10")...7.715.823.000 Optional: Safety ring Contacts page 136 • Assembly instructions page 145	

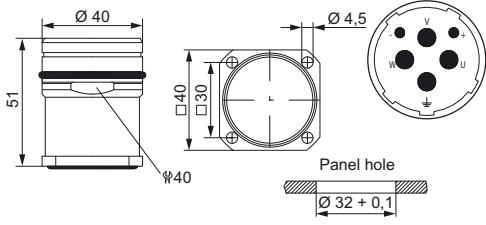
Straight Connector, Female Thread	Cable-Ø	Part Number
  	4 + 3 + PE, insert for sockets 13 – 18 mm (.52 – .71").....7.715.643.000 17 – 24 mm (.67 – .95").....7.715.743.000 21 – 28 mm (.83 – 1.10")...7.715.843.000 Optional: Safety ring Contacts page 136 • Assembly instructions page 145	

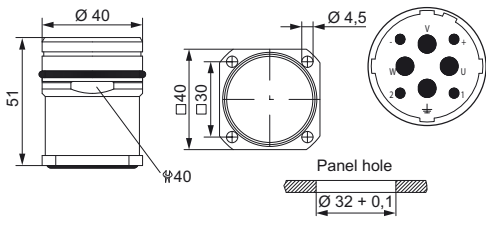
Power Connectors Size 1,5 / Push-Pull

Cable-Ø	Part Number	Straight Connector, Male Thread	
2 + 3 + PE, insert for pins 13 – 18 mm (.52 – .71").....7.725.623.000 17 – 24 mm (.67 – .95").....7.725.723.000 21 – 28 mm (.83 – 1.10")...7.725.823.000			
Contacts page 136 • Assembly instructions page 145			

Cable-Ø	Part Number	Straight Connector, Male Thread	
4 + 3 + PE, insert for pins 13 – 18 mm (.52 – .71").....7.725.643.000 17 – 24 mm (.67 – .95").....7.725.743.000 21 – 28 mm (.83 – 1.10")...7.725.843.000			
Contacts page 136 • Assembly instructions page 145			

Power Connectors Size 1,5 / Push-Pull

Panel Connector	Type	Part Number
 	2 + 3 + PE, insert for pins 4 holes Ø 4,5 mm (.18")7.740.523.000	
Contacts page 136 • Assembly instructions page 146		

Panel Connector	Type	Part Number
 	4 + 3 + PE, insert for pins 4 holes Ø 4,5 mm (.18")7.740.543.000	
Contacts page 136 • Assembly instructions page 146		

Stainless Steel Connectors (INOX)



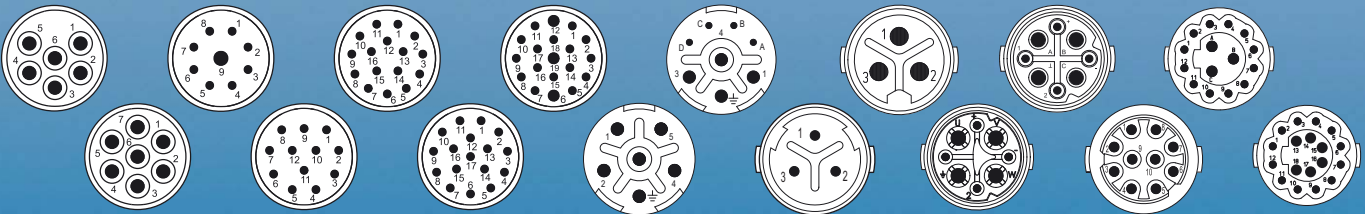
Housings

page 158



Inserts

page 22, 74, 113



Accessories

page 29, 82, 115



Connectors Stainless Steel (INOX)

Mechanical Data	Materials and Technical Data	
Housing	Stainless Steel V4A	1.4404 (AISI 316 L)
Housing surface	Clear	
Inserts (for contacts)	Thermoplastic Polyamid PA 6 (Nylon 6/6), PBT	Fire protection class V-0
Contacts	Brass Alloy	
Contact surface at point of contact	Nickel and gold plated (0,25 µm Au)	
Minimum mating cycles	> 1000	
Seals / O-Rings	Viton (FPM), alternativ EPDM	
Temperature range	-40° C – 125° C	
Type of contacts signal M23	Crimp, solder, dip-solder (PCB)	
Type of contacts power M23	Crimp	
Type of contacts M 16	Crimp, dip-solder (PCB)	
Protection	IP 67 / IP 69 K per EN 60 529 (connected), NEMA 4x	

Additional Information

Electrical data see standard program

Connectors M 16

Signal Connectors M23

Power Connectors M23

page 17

page 65

page 107

Inserts and contacts see standard program

Connectors M 16

Signal Connectors M23

Power Connectors M23

page 22

page 74

page 113

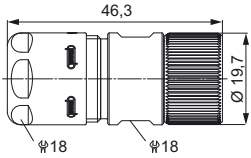


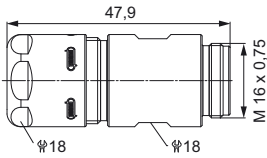
We do not recommend disconnecting or connecting HUMMEL Connectors under load.

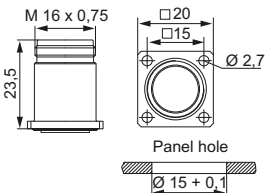
Typical Applications



Signal Connectors M 16 / Stainless Steel (INOX)

Straight Connector, Female Thread	Cable-Ø	Part Number
 	3 – 6 mm (.12" – .24")	7.814.300.000
	5 – 9 mm (.20" – .35")	7.814.400.000
	8 – 11 mm (.31" – .43")	7.814.500.000
	Contacts and inserts page 22	

Straight Connector, Male Thread	Cable-Ø	Part Number
 	3 – 6 mm (.12" – .24")	7.824.300.000
	5 – 9 mm (.20" – .35")	7.824.400.000
	8 – 11 mm (.31" – .43")	7.824.500.000
	Contacts and inserts page 22	

Panel Connector, Male Thread	Type	Part Number
 	4 x holes Ø 2,7 mm (.11") ..	7.840.400.000
	Flange 20 x 20 mm	
Contacts and inserts page 22 • Assembly instructions page 38		

Signal Connectors M 23 / Stainless Steel (INOX)

Cable-Ø	Part Number	Part Number EMC	Straight Connector, Female Thread	
3 – 7 mm (.12 – .28")	7.140.300.000	7.141.300.000		
5 – 10 mm (.20 – .39")	7.140.400.000	7.141.400.000		
7 – 12 mm (.27 – .47")	7.140.500.000	7.141.500.000		
10 – 14 mm (.39 – .55")	7.140.600.000	7.141.600.000		

Contacts and inserts page 74 • Assembly instructions page 163

Assembly tool 7.010.900.127 is required

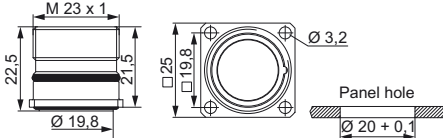
Cable-Ø	Part Number	Part Number EMC	Straight Connector, Male Thread	
3 – 7 mm (.12 – .28")	7.240.300.000	7.241.300.000		
5 – 10 mm (.20 – .39")	7.240.400.000	7.241.400.000		
7 – 12 mm (.27 – .47")	7.240.500.000	7.241.500.000		
10 – 14 mm (.39 – .55")	7.240.600.000	7.241.600.000		

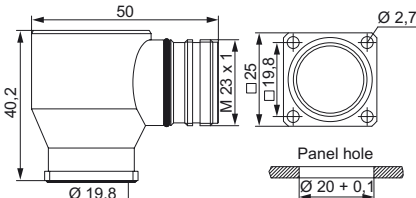
Contacts and inserts page 74 • Assembly instructions page 164

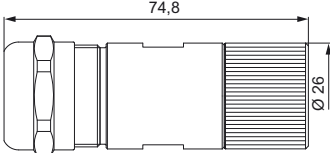
Type	Part Number	Panel Connector, Male Thread, Single Hole Mounted		
Front mounting for male inserts Thread M 20 x 1,57.420.400.000				
Contacts and inserts page 74 • Assembly instructions page 91				

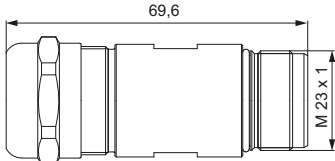
Type	Part Number	Panel Connector, Male Thread, Single Hole Mounted		
Front mounting for female inserts Thread M 20 x 1,57.421.400.000				
Contacts and inserts page 74 • Assembly instructions page 92				

Signal- / Power Connectors M23 / Stainless Steel (INOX)

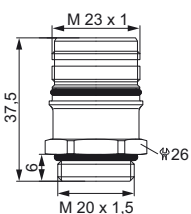
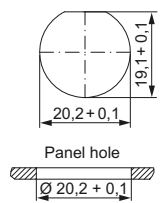
Panel Connector, Male Thread	Type	Part Number
 	With anti-vibration O-Ring 4 holes Ø 3,2 mm (.13").....7.410.400.000	
Contacts and inserts page 74 • Assembly instructions page 91 / 92		

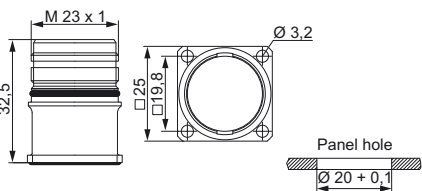
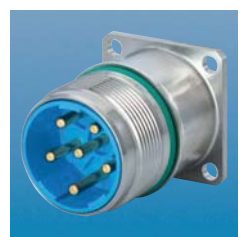
Right Angle Panel Connector, Male Thread	Type	Part Number
 	4 holes Ø 2,7 mm (.11").....7.430.400.000	
Contacts and Inserts page 74		

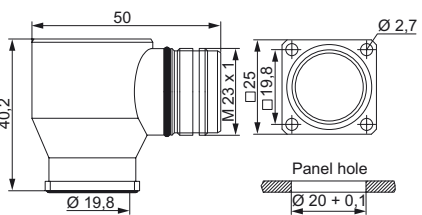
Straight Connector, Female Thread	Cable-Ø	Part Number
 	7 – 12 mm (.27 – .47").....7.554.500.000 11 – 17 mm (.43 – .67").....7.554.600.000	
Contacts and inserts page 113 • Assembly instructions page 121		

Straight Connector, Male Thread	Cable-Ø	Part Number
 	7 – 12 mm (.27 – .47").....7.564.500.000 11 – 17 mm (.43 – .67").....7.564.600.000	
Contacts and inserts page 113 • Assembly instructions page 121		

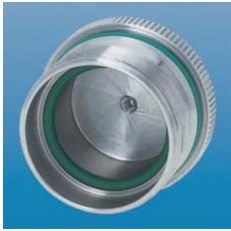
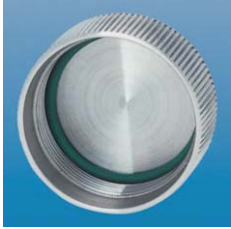
Power Connectors M 23 / Stainless Steel (INOX)

Type	Part Number	Panel Connector, Male Thread, Single Hole Mounted	
Front mounting Thread M 20 x 1,57.621.400.000		 	
Contacts and inserts page 113 • Assembly instructions page 126			

Type	Part Number	Panel Connector, Male Thread	
For front mounting 4 holes Ø 3,2 mm (.13")7.601.400.000 Optional: Flat gasket			
Contacts and inserts page 113 • Assembly instructions page 123			

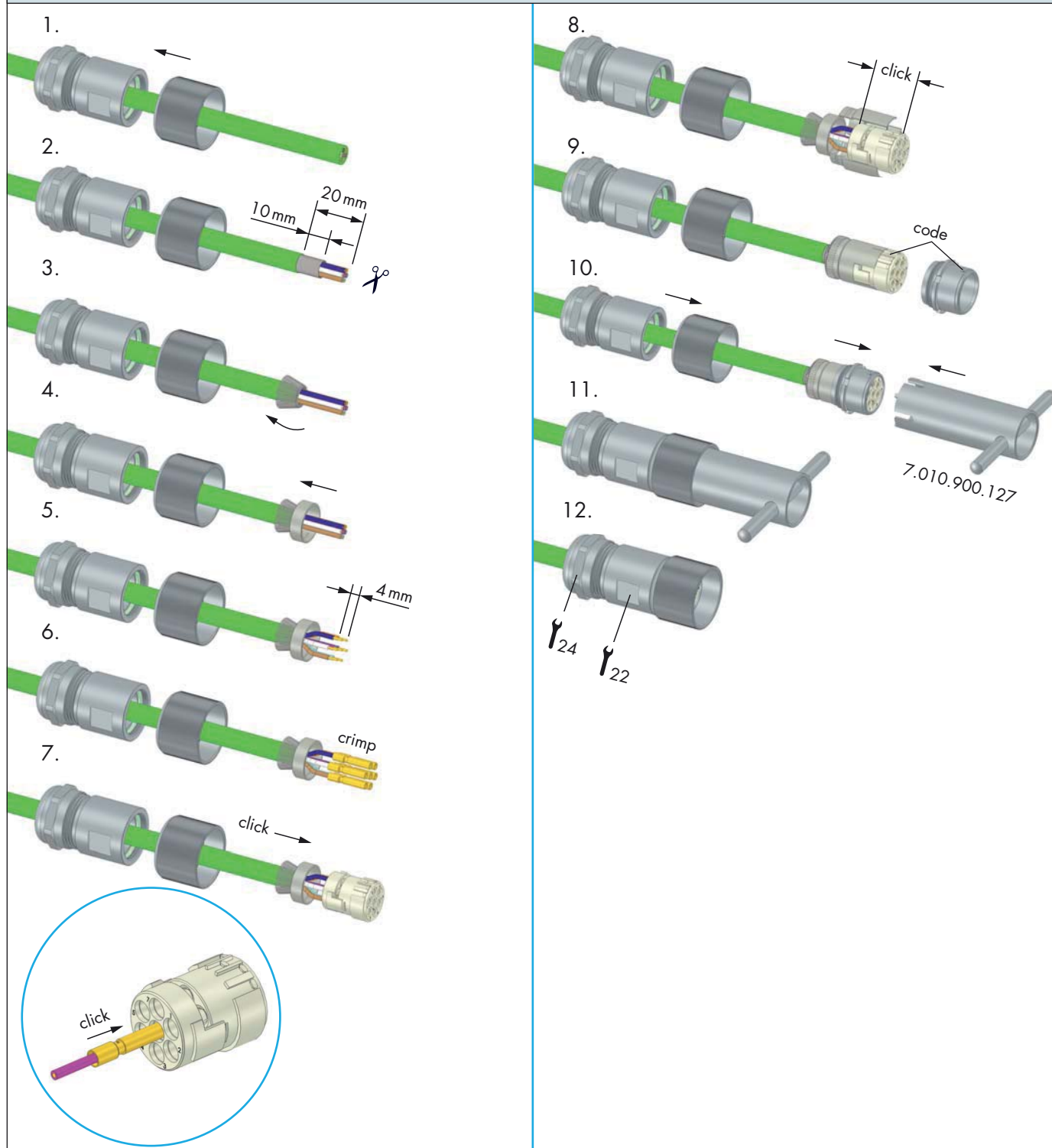
Type	Part Number	Right Angle Panel Connector, Male Thread	
4 holes Ø 2,7 mm (.11")7.630.400.000			
Contacts and Inserts page 113			

Stainless Steel Connectors (INOX) / Accessories

Accessories	Type	Part Number
	Assembly tool	7.010.900.127
	Plastic protective cap for connectors M 16 with male thread for connectors M 16 with female thread for connectors M 23 with male thread for connectors M 23 with female thread	7.000.980.161 7.000.980.162 7.000.900.101 7.000.900.102
	Stainless steel protective cap for connectors with female thread	7.010.904.103
	Stainless steel protective cap with rope for connectors with female threadLength 100 mm	7.010.9S4.103
	Stainless steel protective cap for connectors with male thread	7.010.904.102
	Stainless steel protective cap with rope for connectors with male threadLength 100 mm	7.010.9S4.102
	Crimp tool for manual crimping of machined crimp contacts for signal connectors	7.000.900.901
	Operating instructions on page 85	
	Crimp tool for manual crimping of machined crimp contacts for signal connectors M 16 and M 23	7.000.900.904
	Operating instructions on page 31	

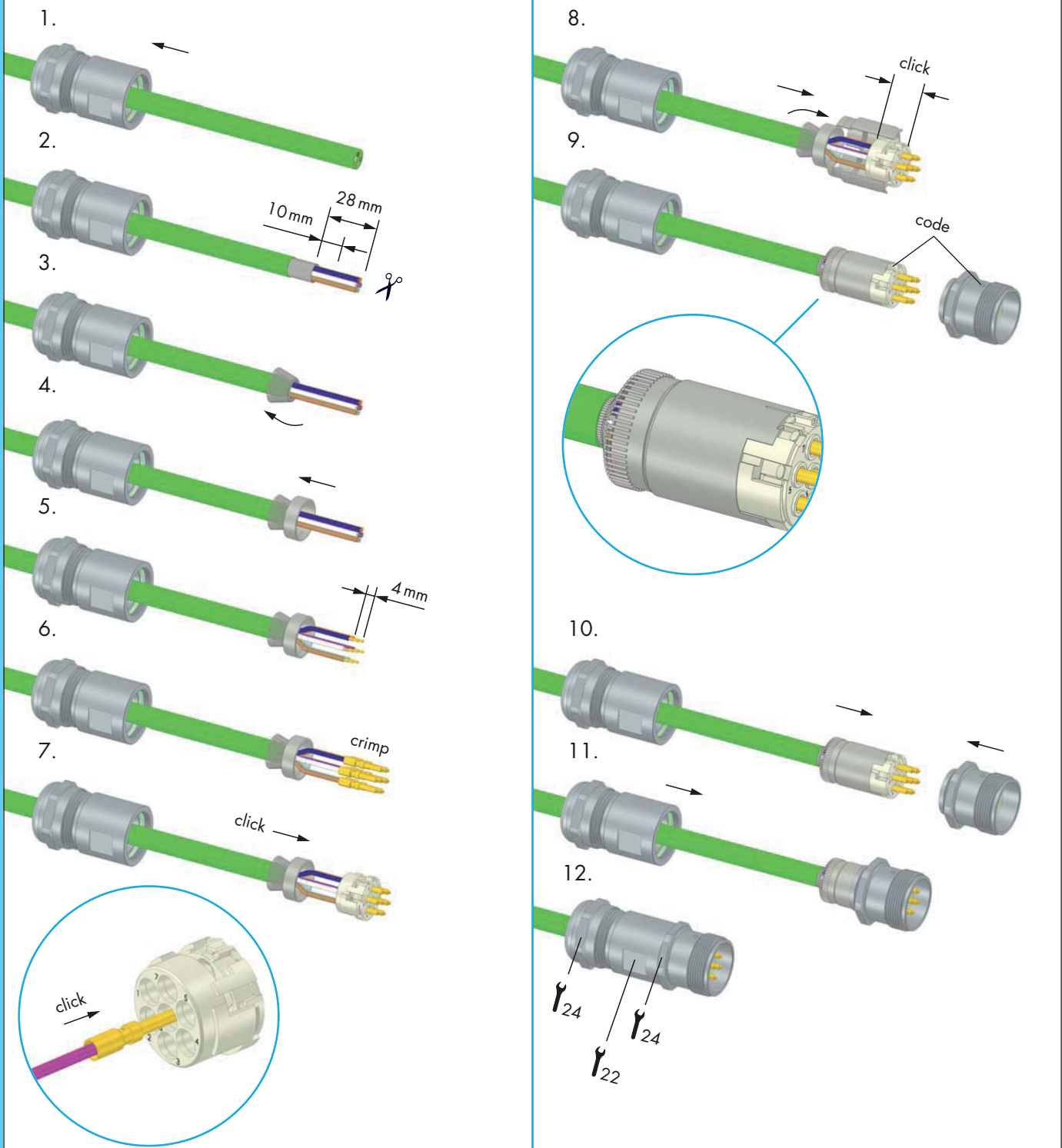
Stainless Steel Connectors (INOX) / Assembly Instructions

Straight Signal Connector, Female Thread



Stainless Steel Connectors (INOX) / Assembly Instructions

Straight Connector, Male Thread



Moulded Cordsets



Product Overview

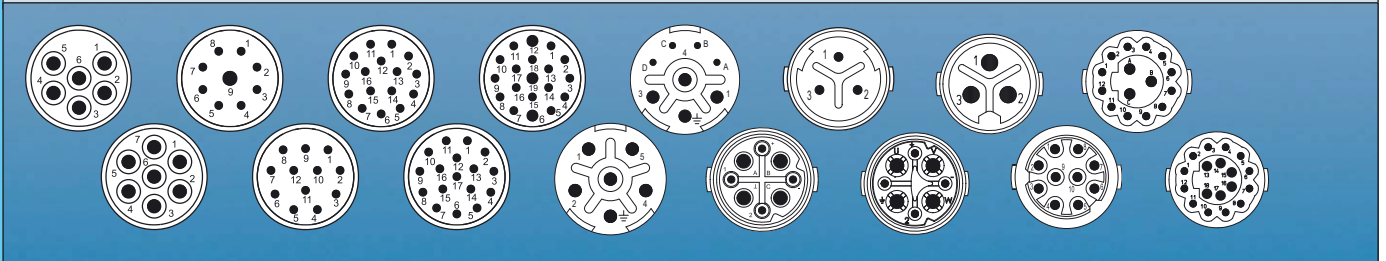
Moulded connector cordsets

page 168



Inserts

page 22, 74 and page 113



Accessories

page 29, 82 and page 115



Moulded Connector Cordsets

Mechanical Data	Materials and Technical Data
Housing	Copper-Zinc alloy Die Casting
Moulded strain relief	Polyurethan PUR
Housing surface	Nickel plated brass, black strain relief
Inserts (for contacts)	Thermoplastic Polyamid PA 6 (Nylon 6/6), PBT Fire protection class V-0
Contacts	Brass Alloy
Contact surface at point of contact	Nickel and gold plated (0,25 µm Au)
Minimum mating cycles	> 1000
Seals / O-Rings	Buna-N standard optional Viton® (Viton is a registered trademark of DuPont)
Temperature range	-40° C – 125° C (-40 °F – 257 °F)
Type of contacts	Crimp
Protection	IP 67 / IP 69K per EN 60 529 (connected), NEMA 4x
Cable style	Cable specifications available upon request
Labelling	HUMMEL logo as standard, other options available upon request

Additional Information

Electrical data see standard program

Connectors M 16	page 17
Signal Connectors M23	page 65
Power Connectors M23	page 107

Inserts and contacts see standard program

Connectors M 16	page 22
Signal Connectors M23	page 74
Power Connectors M23	page 113



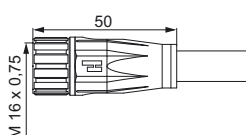
We do not recommend disconnecting or connecting HUMMEL Connectors under load.

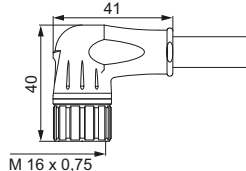
Other versions



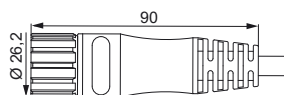
Moulded connector cordsets are also available as Stainless-Steel (Inox)-Versions.

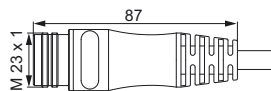
Moulded Connector Cordsets M 16

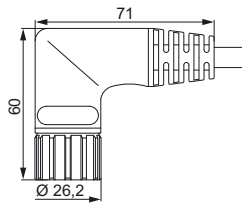
Straight Connector, Female Thread	Type	Inserts
 	Standard / EMC	Pins or sockets

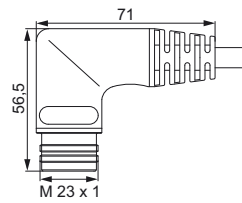
Right Angle Connector, Female Thread	Type	Inserts
 	Standard / EMC	Pins or sockets

Moulded Connector Cordsets M 23

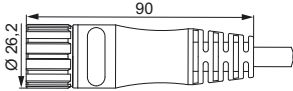
Type	Inserts	Straight Connector, Female Thread	
Standard / EMC	Pins or sockets	 	

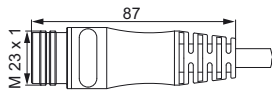
Type	Inserts	Straight Connector, Male Thread	
Standard / EMC	Pins or sockets	 	

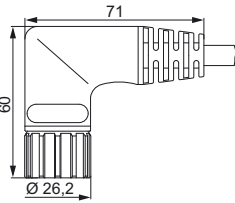
Type	Inserts	Right Angle Connector, Female Thread	
Standard / EMC	Pins or sockets	 	

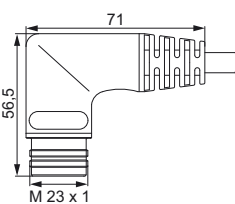
Type	Inserts	Right Angle Connector, Male Thread	
Standard / EMC	Pins or sockets	 	

Moulded Connector Cordsets M23

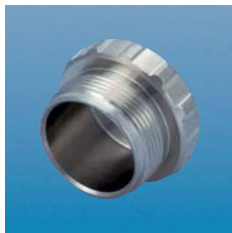
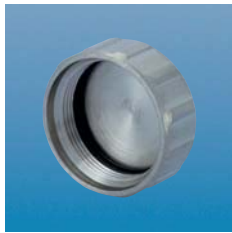
Straight Connector, Female Thread	Type	Inserts
 	Standard / EMC	Pins or sockets

Straight Connector, Male Thread	Type	Inserts
 	Standard / EMC	Pins or sockets

Right Angle Connector, Female Thread	Type	Inserts
 	Standard / EMC	Pins or sockets

Right Angle Connector, Male Thread	Type	Inserts
 	Standard / EMC	Pins or sockets

Moulded Connector Cordsets / Accessories

Type	Part Number	Accessories
Plastic protective cap for connectors M 16 with male thread7.000.980.161 for connectors M 16 with female thread7.000.980.162 for connectors M 23 with male thread7.000.900.101 for connectors M 23 with female thread7.000.900.102		
Brass protective cap for connectors M 16 with female thread7.010.900.163 for connectors M 23 with female thread7.010.900.103 for connectors M 23 with female thread7.010.900.183		
Brass protective cap for connectors M 16 with male thread7.010.900.162 for connectors M 23 with male thread7.010.900.102		
Brass protective cap with chain für Steckverbinder M 16 with female threadLength 70 mm.....7.010.9S0.705 for connectors M 23 with female threadLength 70 mm.....7.010.9S0.703Length 100 mm.....7.010.9S1.003 for connectors M 23 with female threadLength 70 mm.....7.010.9S0.783Length 100 mm.....7.010.9S1.083		
Brass protective cap with chain for connectors M 16 with male threadLength 70 mm.....7.010.9S0.704 for connectors M 23 with male threadLength 70 mm.....7.010.9S0.702Length 100 mm.....7.010.9S1.002		

Hybrid Connector for Compressed Air



To place lines for compressed air and electrical signals in one single connection, a hybrid connector M23 combines different types of contacts in one insert.

Bulkhead Connector



Bulkhead connectors accept plugs on both sides. They are rugged, liquid tight and available in all number of poles.

Simple EMI / RFI shielding



An integrated metalized EMI clamping insert grounds to the braid significantly simplifying the assembly of the elbow connector.

MULTI Seal Connector



A large selection of standard MULTI seal inserts allow strain relief of several individual conductors on one single connector.

Flexible Cable Protection



In addition to the integrated strain relief, the flex nut adds kink protection to a cable - available for all connector sizes.

Adaptor flange



To secure loose connections, an adaptor flange can be attached to a straight connector.

12-point hex and knurled nut



This special nut makes connection simple by either tightening the connector manually (knurled nut) or with a wrench (12-point hex).

Conduit Attachment



Flexible corrugated conduit can be attached to a connector with an adapter offering strain relief and cable protection as well.

Connector with specific pull-out resistance



After reaching a certain pull-out force the connection releases preventing damage to the device (apparatus).

Bulkhead Fitting



This fitting with oversized flange is commonly used in the ship building industry where Signal Connections have to be maintained under extreme conditions.

Captive Protective Cap



The metal protective cap is secured to a cable by a safety ring and stays attached in open connections.

ANACONDA Conduit Adapter



HUMMEL offers custom adapters for ANACONDA conduit systems in hazardous locations.

Distribution-box



Distribution-boxes are known as important components for applications in automation. Robust and fully wired they are done according to customers specification.

Coloured Overmould



Completing a design or showing technical functions, overmould could be made in different colours too (e.g. DESINA green RAL 6018).

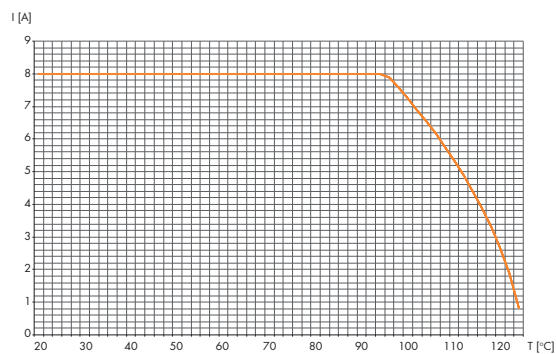
High temperature applications



For high temperature applications HUMMEL offers connectors with special inserts able to stand temperatures up to 160 °C (320 °F).

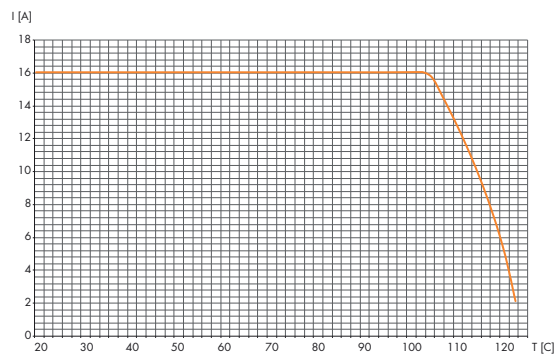
Derating M 16

Straight connectors male + female, 10 pole,
wires 10 x AWG 18



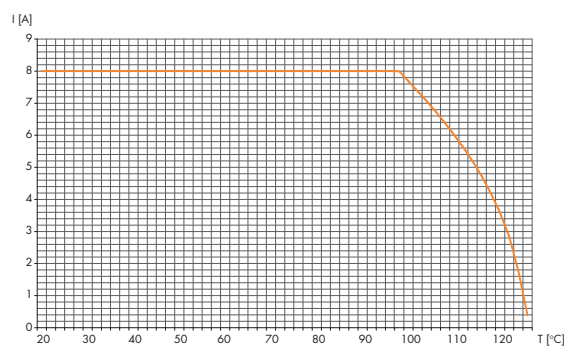
Derating M 16 TWINTUS

TWINTUS and straight connector female M 16
4+3+PE, wires AWG 14 (Power)
10pole, wires AWG 26



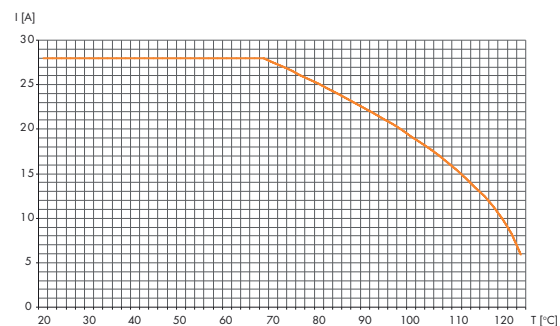
Derating M 23 Signal

Straight Connectors male + female,
wires 12 x AWG 17



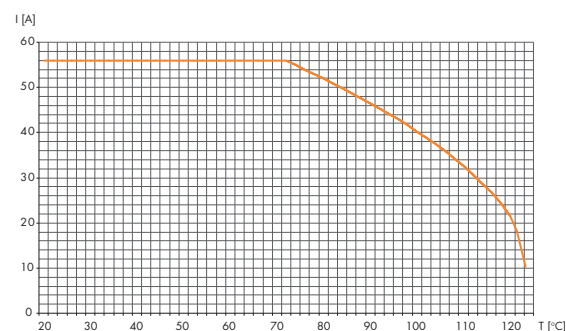
Derating M23 Power

Straight connectors male + female M23, 5 + PE,
wires 5 x AWG 12



Derating M40 (Size 1,5)

Straight connectors male + female,
wires 3 x AWG 6



Page Finder

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7.003.917	.77	7.010.971	.162	7.416	.68	7.645	.110		
7.003.919	.78		.114	7.420.0	.69	7.651	.111		
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7.003.926	.99					7.661	.110		
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